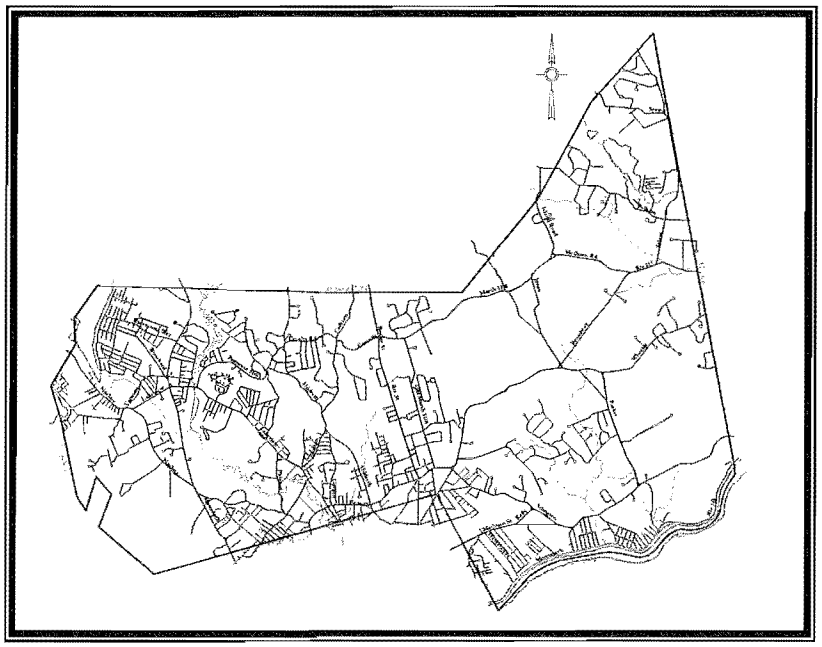
DRACUT MASTER PLAN
Dracut, Massachusetts



Dracut Master Plan Committee

Prepared By: John Brown Associates, Inc.

In Association With: Bluestone Planning Group, Daylor Consulting Group and David J. Friend, ITE

January, 1999

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Town of
Dracut, Massachusetts

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Dracut, Massachusetts

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Introduction

Dracut, Massachusetts is a middle-income town located north of the City of Lowell on the New Hampshire border. The Town's 21 square miles contained a population of 25,594 in 1990 and is currently estimated at 27,000. During the two previous decades, the town's population grew over 40 percent, and is projected to increase at nearly the same rate by 2010, to a population of over 34,400. Predominantly residential, Dracut has relatively little commercial or industrial activity, and it lacks a town or village center. Residents particularly value the open space and rural character still prevelent in many areas of town, although they see that character as threatened by increasing residential development. Much of Dracut's new development is taking place in the eastern part of the town, where there are still some working farms. The town is currently expanding the sewer system and faces a variety of other capital projects including a modernized police station, new fire stations, and new sidewalks conforming to ADA requirements. The Town Office Building needs improvements and ADA compliance. While demand for expanded and improved town services increases, the town lacks a diverse tax base to help pay for these services. Key areas of concern addressed in the Master Plan process included:

- Methods for the preservation and acquisition of remaining open space and agricultural lands
- Neighborhood preservation
- Location and attraction of appropriate commercial and industrial development to create jobs and diversify the tax base
- Exploration of measures to promote creation of a town center
- Promotion of adaptive reuse of old mill buildings and other underutilized structures for higher value activities and improved appearance
- Preservation of cultural and historic resources
- Public access to rivers, ponds, and streams
- Future demand for drinking water, preservation of water quality, and water treatment needs
- Improvements to town infrastructure including public facilities and roadway circulation.

The Master Plan for the Town of Dracut is intended to serve as a guide for Town development for the next 10-20 years or longer. It establishes goals for the community and makes recommendations aimed at accomplishing these goals in the areas of land use, economic development, housing, the environment, public facilities and transportation and circulation. This Executive Summary summarizes the findings and recommendations of the Master Plan.

Process

The process of revising Dracut's Master Plan began in 1997, with the creation of the Master Plan Committee. This Committee was made up of members of the Planning Board, Board of Appeals, Conservation Commission, Board of Health, School Committee, Board of Selectmen, Capital Planning Committee, Finance Committee, Recreation Commission, and citizen representatives. This Committee met for a number of months and concluded that the Master Plan, last revised in

1966, was in need of complete updating. As a result of the Master Plan Committee's work an appropriation was obtained to hire a consultant to assist in the preparation of the Master Plan.

A selection committee was formed which recommended the hiring of John Brown Associates of Cambridge, Massachusetts. The consultant team included Bluestone Planning Group, Daylor Consulting Group, and David J. Friend, ITE, as subconsultants. John Brown Associates concentrated on land use, housing and economic development. Bluestone Planning Group evaluated the town's public facilities and urban design issues; Daylor Consulting Group gave its attention to the environment and utilities; David J. Friend was responsible for transportation and circulation. All members of the consultant team contributed to the preparation of the implementation plan.

The Committee held meetings with the consultants and working sessions of the Committee. Also included were four neighborhood meetings where residents were invited to provide input, suggestions and ask questions of the Committee and consultant team. The comments from these meetings were incorporated into the Committee's discussions as it formulated the goals of the Master Plan. A town-wide public forum was held in early October to review alternative land use scenarios. Comments received at this meeting helped to guide the development of the Guide Plan For Future Land Use and other recommendations in this report.

The consultant team's first order of business was to perform a preliminary inventory and analysis of the factors that impact development within Dracut. These factors include the existing land use, economic development, housing, environment, public facilities, utilities, and transportation and circulation. The inventories for these categories were compiled though discussions with the various boards, commissions and departments. A summary of the inventory and analysis is included below. The consultant also prepared a community survey which was distributed to all households in Dracut. A substantial response (about 16%) was received and the results were useful in development of the Master Plan goals and recommendations.

The consultant imported the Town's CAD (computer aided design) base map into its GIS (Geographic Information Systems) computer mapping system. All maps were prepared using this system.

Summary of Inventory & Analysis

There are a number of factors which influence the development of a community such as Dracut. These factors are discussed below.

Land Use
Dracut contains 21 square miles; of this area, 392 acres are water bodies and the rest (13,278 acres) is land. Vacant land (not including protected open space) accounts for 47 percent of the total land area (6,460 acres).

Dracut is primarily a residential community; 60.9 percent of the developed area of the town is devoted to housing. A diversity of housing is accomplished by the designation of various categories of residential land use with lot sizes ranging from 22,000 square feet to 80,000 square feet. Roads, highways and public utilities represent another 13.0 percent of developed land. Public and semi-public land use, such as parks, cemeteries, hospitals, and places of worship

comprise 16.0% of the developed land area. Commercial, office and industrial uses make up the remaining 4.6% the developed land area.

In order to determine the suitability of vacant land for development, various kinds of constraints were evaluated: soils, wetlands, floodplains, and topography. The analysis was conducted on vacant land and undeveloped portions of developed parcels. The total area analyzed contains 6,460 acres. Of this total 1,876 acres (29%) are agricultural and 4,584 acres (71%) are other undeveloped land. However, some lands have severe constraints to development (such as wetlands and floodplains) leaving only 4,815 acres of developable land.

Socio-Economic Development

The Town of Dracut once took part in the early industrial development and trade along the Merrimack River, and served with Lowell as a center of the region's economy. After the mid-1800's Dracut lost much of its manufacturing base, and some of the neighborhoods along the Merrimack River that were most closely tied to the mills in Lowell were eventually annexed by Lowell. Throughout this time agriculture remained an important economic activity in the town. At the beginning of the twentieth century the town's economy was revived for several decades as Dracut became a popular resort destination around Long Pond. Later in the twentieth century highway improvements in the region served to disperse the region's workforce, and reinforced the development of Dracut as primarily a bedroom community to employment centers including Lowell, Nashua, New Hampshire, and towns along the interstate routes north of Boston. Dracut continues to have a modest economic base with a scattering of industrial activities and small businesses.

At the present time, wholesale and retail trade, contracting and construction, government, and service industries are the most important sectors of Dracut's economy. Together these sectors provide almost 78 percent of Dracut's employment. Manufacturing is still important in Dracut, employing 9 percent of the work force. Statewide, only 16.3% of the work force is employed in manufacturing.

The economy in much of eastern Massachusetts has fully recovered from the recession in the early 1990s. With a relatively small proportion of the town's workforce employed in Dracut, the town's economy is dependent upon the surrounding region for employment. Close to 80% of the town's workforce is employed in the region north of Boston. Employment in the Lowell PMSA declined after a peak in 1988, but has risen modestly in recent years. The structure of the economy has shifted in recent years, as more employment growth has taken place in the high tech, service and trade industries, and less in manufacturing industries. Projections for the near future show considerable job growth in the region, especially in high tech and computer related industries.

The tax base in Dracut is primarily residential, with homeowners providing approximately 90% of the tax revenues. Exempt properties constitute 5% of total property value in the town. Industrial and commercial properties combined make up approximately 7.5% of the taxable property in Dracut. Chapter 61, 61A, and 61B tax provisions permit private agricultural, forestry, and recreation lands to be taxed at a lower rate as long as they remain undeveloped. Such lands constitute less than one percent of the total property value in the town.

The population of Dracut has grown at a steady rate in the past half century, almost doubling between 1960 and 1990. The rate of growth has declined over the past decade but is still significant. Future land use policies will help to determine future growth rates.

Housing
Dracut's residential development patterns reflect the phases of the town's history, starting as an agricultural community, then a mill town, a summer resort town, and now a bedroom community. There is considerable room for residential growth in the town, although the rate of population growth in the northern Middlesex region is expected to slow in coming decades.

Dracut is historically characterized by its residential neighborhoods. Collinsville is located in the northwest corner of our town, and includes access to two ponds, a past summer resort area, and the Collinsville Mill. Lakeview Avenue and Mammoth Road are the main roads. To the southwest is the Navy Yard Neighborhood. It contains an urbanized area which grew up around the Navy Yard Mill at the intersections of Lakeview Avenue and Pleasant Street (Route 113). Residents of nearby Lowell also frequent this area. To the east is Dracut Center. The Moses Greeley Parker Library Dracut Town offices, The Yellow Meetinghouse or Christ Church United of Dracut, and Monahan Field are at the intersection of Pleasant Street (Route 113) and Bridge Street (Route 38). To the southeast is the neighborhood of Kenwood. It is bordered to the south by the Merrimack River along which Merrimack Avenue (Route 110) runs. The northeast neighborhood is East Dracut. It is the least developed residentially but the most developed industrially. Broadway Road (Route 113) is the main road and accesses neighboring Methuen, Massachusetts.

Like the rest of Massachusetts, prices of housing in the town have risen dramatically in the last fifteen years. The median cost of single family homes in 1997 was $140,000 and for condominiums was $72,800. The number of households in Dracut increased from 6,768 in 1980 to 8,992 in 1990, an increase of 32.9% in this period, compared to an overall population growth of only 20.5%. This disparity is related to the decline in the number of persons per household in Dracut from 3.1 persons in 1980 to 2.9 persons in 1990. This decline reflects a regional, indeed national trend, to smaller household size. This trend is expected to continue into the future.

Many residents face the problem of finding affordable housing in today's housing market. The types of people most often affected by this problem include seniors, young adults, young families and first time homebuyers. Dracut now has a diversity in type and tenure of housing. Housing types range from large single-family homes on relatively large lots to higher density condominiums and apartments. Approximately 24% of the town's residents are renters.

Environment and Open Space
Dracut is a semi-rural town with a wealth of freshwater, forest, and farmland resources. Because of growing development pressures in Dracut, it is important to identify these resources and to establish a plan to protect them now, so that development can occur without destroying the town's rural character and natural environment.

Open space land serves a variety of purposes. It provides habitats for wildlife. It can serve as a greenbelt, or buffer, between developed areas. It can provide recreational and visual enjoyment. Ponds, brooks and wetlands also serve an important function in the natural flood control system.

Historic & Cultural Resources
Dracut is rich in historical resources and properties and efforts have been made to preserve that past. Recently, for example, the Historical Society has saved an important part of Dracut's past by acquiring, preserving, and relocating Harmony Hall so that it can be productively used, once again, as a new public meeting space for the entire town.

However, in spite of significant efforts such as this one, most historic properties are not now either well known, identified, or protected from eventual redevelopment or demolition. Therefore, in order to maintain its historic character for future generations, Dracut may wish to survey its resources, increase public awareness of their existence, establish priorities for preservation, and establish historic districts or provide historic designation to individual properties, such as the industrial mill buildings in Collinsville and the Navy Yard, with the consent of property owners, to provide protections.

Public Facilities

After an extended period of deferred maintenance together with increasing population growth, Dracut is now in the midst of a major reconstruction program of its public buildings, schools and recreational facilities to remedy deteriorating conditions, space shortages, and overcrowded schools. For example, voters have recently approved the construction of two new fire stations. The new Veterans Memorial Park on Broadway will provide new recreational playfields. There are also plans to construct an expansion of the Moses Greeley Parker Public Library. Additionally, a Police Department Facility Feasibility Study is underway. There is now also a funded proposal to expand the Senior Citizens Drop In Center; and there has been preliminary discussion of expanding the existing Town Hall or constructing a new Town Hall.

Dracut's Public School facilities are severely overcrowded and include a High School, Junior High School, four elementary schools, and School Administrative Offices. The heart of the school system is at the 82 acre "academic campus" on Lakeview Avenue that includes the High School, the Junior High School, the Middle Elementary School and a variety of playfields. A new Junior High School and Upper Elementary School will be constructed to alleviate the school system's overcrowded conditions.

The town completed a comprehensive open space and recreation plan in 1996 which provides a detailed program for open space and active and passive recreation.

Transportation

Dracut residents rely heavily on their automobiles and the local/regional street system to meet their transportation needs. With few exceptions, the transportation system available to Dracut residents provides adequate access to most user groups and satisfies the majority of community needs. However, Dracut residents do not enjoy direct access to any of the three regional highways—Route 3 in Tyngsborough, Route I-495 in Lowell, or Route I-93 in Methuen—but rely heavily on them to provide access to their workplaces. Limited fixed route bus services are also available to residents housed in the most densely populated districts of town, and commuter rail service to Boston can be accessed in nearby Lowell.

The existing street and circulation system in the Town of Dracut is generally well-designed. Most local or residential streets are linked to the larger traffic-carrying streets (collectors and arterials) in a way that facilitates good access to other parts of the community and region. However, some are in violation of the functional classification system, resulting in cut-through traffic on local streets.

The traffic generated by the current pattern and intensity of development in Dracut is highly compatible with the size, configuration, and location of the existing street system. The heavily residential character of the community—in combination with the relatively small size of its business districts–generates moderate volumes of traffic and congestion on the local street

network. With the exception of Lakeview Avenue where major street improvements are planned, ample capacity currently exists on the local street system to accommodate peak traffic loads. All in all, the existing transportation system in Dracut appears to be in reasonable "balance" with its land use plan. However, the future development and occupancy of currently vacant or underutilized land in the town will generate new vehicle trips on the town street system, may increase vehicle congestion, and may create additional points of vehicle/pedestrian conflict.

Goals

Goals were formulated with substantial input from the citizens of Dracut. The following goals and policies have evolved from the community survey, the neighborhood meetings, the public forums, and other community input:

I.0 Land Use

1. Manage residential, commercial, industrial and recreational development in a way that carefully balances growth and economic benefit with the need to protect the character of existing neighborhoods.

2. Maintain and increase protected open space and recreational land uses.

3. Develop a strategy to retain agricultural and other undeveloped lands important to the character of the community.

4. Reduce the potential for commercial sprawl and strip development.

5. Encourage high quality nonresidential development in appropriate areas to reduce the dependence upon the homeowner for tax revenues.

6. Review and evaluate the existing bylaws, zoning districts and regulations and revise them, where appropriate, to achieve the desired land use goals.

7. Allow no more commercial use than is necessary. Cluster commercial uses in strategic locations.

8. Link open spaces to create networks and to separate neighborhoods and land uses.

9. Reserve sufficient land for community facilities to serve future land uses.

10. Coordinate sewer plans with future land use goals. Seek to avoid undesirable impacts from secondary growth caused by sewer expansion.

11. Develop regulatory tools to further encourage clustering of residential development and diversity of housing density.

2.0 Socio-Economic Development

1. Attract environmentally acceptable businesses and industries to the town which will help to maintain the quality of life through providing real estate tax income, employment, entrepreneurial opportunities and convenient goods and services.

2. Enhance the unique role, character, and scale of commercial areas within the town including retail, service, and industrial uses.

3. Encourage the viable reuse of the older mill properties in the Navy Yard and Collinsville neighborhoods.

4. Coordinate vehicular traffic, pedestrian traffic and parking in commercial areas so that they function in an optimal manner.

5. Maintain high standards of design and maintenance in existing and new commercial developments.

6. Maintain and increase a variety of job opportunities within the town to match the diverse skill levels and needs of the resident labor force, including low and moderate income workers.

7. Encourage Dracut employers to form a local business organization in order to build a stronger working partnership with Town government on economic development issues.

8. Pursue resources to enable local firms and residents to develop, diversify and enhance job skills.

9. Support regional efforts to develop cooperative marketing, training, financing and other business development programs that might be accessed by Dracut businesses and/or augment local economic development initiatives.

10. Build long term organizational capacity to sustain an economic development effort.

11. Plan for long range infrastructure improvements and support other local and regional initiatives that help make local employers and workers more competitive.

12. Streamline procedures and reduce the potential for future conflict in the local regulatory and permitting process.

3.0 Housing

1. Provide a wide range of housing options so as to meet the needs of a diverse population.

2. Create diversity in new residential housing units consistent with community character and needs.

3. Provide for more elderly housing and life-care facilities to meet the needs of Dracut's older population.

4. Preserve and strengthen the character of the town's residential neighborhoods and protect them from adverse influences.

5. Carefully integrate new or expanded housing into existing districts and neighborhoods so that it is not physically or environmentally disruptive to the existing style and scale.

6. Create recreational areas within existing neighborhoods, where needed.

7. Encourage residential development that does not overly disrupt the character of rural areas in the town.

8. Encourage independent living for elders, handicapped and others with special needs.

9. Seek State/Federal or private assistance for senior or low and moderate income housing.

10. Maintain the viability of the existing housing stock through code enforcement and provision of neighborhood amenities.

11. Develop creative techniques for land development in order to preserve rural character. Improve cluster zoning and encourage quality cluster development.

4.0 Environment and Open Space

Open Space Goals

1. Increase the Town's open space holdings, including woodlands, wetlands, farmland, and water resources and their shorelines.

2. Increase the level of protection on private farmland under Chapter 61A.

3. Plan and establish a townwide system of trails and greenways that connects neighborhoods to major open space in the Town.

4. Focus on protecting large contiguous blocks of open space.

5. Protect the town's scenic resources.

6. Evaluate and mitigate the secondary growth impacts of the proposed expansions to the sewer system.

7. Increase public knowledge of and access to open space.

8. Educate the public–especially large landowners–on the options for and benefits of preserving land as open space.

Natural Resource Goals

1. Protect ponds and streams from the threat of nonpoint-source pollution, and improve water quality through proper management.

2. Protect wetlands from development and pollution.

3. Protect against groundwater pollution, especially in areas where septic systems and private wells are used.

4. Protect valuable stands of vegetation and endangered species habitats.

5. Manage habitat areas to accommodate wildlife and recreation uses.

6. Protect against the potential environmental impacts of industrial development in East Dracut, such as light and noise pollution.

7. Educate Town residents about the problems of land, water, and air pollution and how they can help prevent these problems in Dracut.

5.0 Historic and Cultural Resources

1. Identify all of Dracut's historic and cultural resources.

2. Protect Dracut's historic and cultural resources, which are now largely unprotected. Consider the establishment of Local Historic Districts, with the consent of affected property owners, to protect historic properties and areas.

3. Increase public awareness of Dracut's historic and cultural resources, which now largely go unnoticed, by identifying those resources to the public.

6.0 Public Facilities

1. **Municipal Buildings** -- Modernize and improve Dracut's municipal buildings and facilities (i.e. Library, Town Hall, Highway Garage, many of which have suffered from deferred maintenance benign neglect, and lack of necessary expansions over the years to meet Dracut's growing population and expectations for better municipal services.

2. **Public Safety Facilities** -- Expand and improve public safety and emergency coverage and services.

3. **School Facilities** -- Provide adequate school facilities for Dracut's expanding school-aged population.

4. **Recreational Facilities** -- Provide expanded and improved active recreational facilities, including playgrounds, play fields, parks, and town beach areas, for all age groups - toddlers, children, adolescents, and adults. Recreational facilities should also be distributed throughout

all of Dracut's neighborhoods.

5. **Cemeteries** -- Provide for sufficient burial room at Town Cemeteries for those residents who may wish to use them.

6. **Long Range Capital Facility Planning** -- Continue Dracut's Permanent Building Committee and Capital Planning Committee process to provide an ongoing review and forecasting mechanism to identify and fund needed capital improvements and ongoing maintenance, repair and replacement needs.

7. **Federal and State Accessibility Improvements for the Disabled** -- Continue Dracut's ongoing program to make all municipal facilities compliant with federal and state accessibility requirements.

8. **Find Reuse Purposes for Surplused Municipal Facilities** -- Identify reuse options for soon-to- be -surplused municipal facilities (i.e. old Navy Yard Fire Station, the old Kenwood Fire Substation, and possibly the Town Hall Annex and Sewer and Parks Department garages) to provide new services to Dracut's citizens.

7.0 Transportation

1. Construct and maintain a street system that provides acceptable overall and peak hour levels of service on all roadway segments and at all major intersections.

2. Encourage the development of a balanced transportation system that includes not only the street circulation system, but also provides Dracut residents with adequate public transportation services, pedestrian and bicycle facilities.

3. Promote safety in residential areas by separating vehicle, pedestrian, and bicycle movements whenever possible.

Summary of Recommendations

1.0 Land Use

The Guide Plan For Future Land Use is a long-range projection of the most desirable future land uses at specific locations in the town, and may be subject to revision as time passes. It takes into consideration the Town's capacity to accommodate the impacts of future growth as well as the Town's desire to meet future needs (housing, economic development, open space preservation, etc.) The Guide Plan follows quite closely the Composite Plan developed during the consideration of alternative land use scenarios (see Appendix 1-2 of Section 1).

Dracut is a community with a mixture of urban and rural areas. While neighborhoods in the southern and western parts of the town near the border with Lowell and Long Pond are fairly urbanized, other sections of the town, especially East Dracut and along the border with New Hampshire are more rural in character. A considerable amount of land (over 35% of the total

land area) is capable of future development, most of which is located in the rural areas of the town. Growth and redevelopment can have a profound effect on the character of the urbanized areas.

The Guide Plan is intended to recommend long term future land use policy. Some of its recommendations can be implemented immediately but others may await changes in real estate market conditions, the availability of needed infrastructure (water, sewer, streets etc.), the availability of Town funds, or private land use decisions. The plan will also provide guidance for future zoning map changes, although some additional study may be required to identify exact or appropriate boundaries for specific map changes. Means of implementing the recommendations of this plan are discussed in Section 8 of the Master Plan, Implementation.

Commercial/Business Development

In order to preserve the character of existing neighborhoods, large scale commercial development is limited to an area located along Route 38 (Bridge Street) which is designated as Highway Business and to the intersection of Pleasant Street and Hildreth Streets where the Shop & Save supermarket is located. Commercial areas in all other parts of the town are reserved for smaller scale uses. This reflects existing development and encourages future development and redevelopment along similar lines. Smaller scale commercial areas are divided into two categories (similar to existing zoning districts). One allows a mixture of commercial uses and single- and two-family residences (Retail/Residential), while the other allows only commercial use (Neighborhood Retail). The Neighborhood Retail category is designated in the town center, as well as sites along Lakeview Avenue where more concentrated neighborhood commercial uses are appropriate. The Neighborhood Retail area at the intersection of Route 113, Broadway, and Arlington Street is expanded beyond the current commercial zoning district to reflect existing land uses. Retail/ Residential use is designated for other areas which are currently zoned for commercial use but are not appropriate for large-scale or intensive commercial development.

Industrial/High Tech. Future industrial and high tech use is concentrated in East Dracut along Route 113 (Broadway) and Methuen Street near the border with Methuen, largely reflecting the areas currently zoned for industrial use. The extent of the area recommended for industrial use is decreased from existing zoning along Loon Hill Road and to the rear of Route 110 to reflect existing uses and to protect residential neighborhoods from the potential impact of future industrial development.

As indicated in the existing zoning, no heavy industry is recommended. Light industrial uses appropriate for these areas would include non-polluting high tech, warehousing, light manufacturing, assembly, non-polluting electric power generating facilities, and research and development. Industrial areas should not be used for truck terminals or additional distribution centers. Campus-style office and industrial parks are to be encouraged.

Mill Villages

Viable reuse of the historic mill buildings at Collinsville and Navy Yard could include a mixture of multifamily residences to meet specific needs (such as elderly housing) and limited commercial uses. Other alternatives might include office use or "incubator" space for smaller industrial businesses. Some incidental convenience retail and service uses could also be allowed. Parking is likely to be a major constraint for any type of use that is considered. Alternatives for implementing the reuse of the mill structures are discussed further in Section 2, Socio-Economic Development and Section 8, Implementation.

Residential Development
The Guide Plan recommends a more varied pattern of housing density, with higher density in the south and west portions of the town near the border with Lowell, and lower density in East Dracut and along the northern border with New Hampshire. Sites which have been identified as appropriate for multifamily development include the area along Route 38 just south of the intersection with Cross Street, along Textile Avenue near the border with Lowell, and on Mammoth Road Use of cluster development and transfer of development rights could also contribute to increasing the variety of residential development and maintain the character of existing neighborhoods. Protection of open space can help to define the boundaries of distinct residential areas. Options for protecting open space in combination with residential development are discussed further in the Open Space and Implementation sections.

Open Space/Recreation
The Guide Plan identifies areas throughout the Town which are recommended for open space protection. These areas include wetlands, floodplains, lands currently classified under Chapter 61, and key tracts of land currently in agricultural use. The Guide Plan also attempts to link many of these parcels to create open space networks, making open space accessible to residential areas, water bodies, and the Town Center. Future protected open space will likely be in a mixture of public and private ownership. Recreation facilities, including ball parks, swimming, hiking trails, neighborhood parks, etc., may be accommodated in some of the areas that are recommended for open space protection. These recommendations reflect the Town's Open Space and Recreation Plan.

Public/Semi-Public
The Guide Plan shows existing public and semi-public lands and their relationship to other uses. Future expansion of public facilities can be accommodated through reuse of developed lands or in less sensitive areas that are proposed for open space.

Impacts of Development
A buildout analysis was prepared showing the long term impacts of development under the Guide Plan for Future Land Use. Table E-1 shows the amount of development that can take place at full buildout if the recommended land use policies are implemented.

Table E-1
Summary of Total Buildout Capacity Under Guide Plan

Total Residential Units	2,507 dwelling units
Total Commercial/Retail	492,900 square feet
Total Light Industrial/High Tech	13,245,700 square feet

The above summary of total buildout capacity under the recommended Guide Plan for Future Land Use represents the amount of development possible if every parcel of developable land is developed. Due to the limitations of market absorption, full buildout may be 40-50 years in the future. Tables 1-5 and 1-6 of Section 1 of the Master Plan show projections of potential residential and nonresidential growth up to the year 2020. Substantial land for additional growth will remain at that time. Residential growth is expected to take place at a faster rate than commercial and industrial growth.

2.0 Socio-Economic Development

Location of Economic Activities

As recommended under the Guide Plan for Future Land Use, the Town should avoid overzoning for commercial and industrial development but should instead direct these uses into the selected areas. Allowing commercial and industrial development only in areas that are appropriate will encourage higher value uses to occupy those sites and will protect the interests of existing businesses. The Guide Plan recommends concentrating large-scale commercial development mostly along the northern part of Route 38 and limiting all other commercial areas to smaller-scale uses. The areas that are currently zoned for industrial use are for the most part well placed, but should be reduced in certain locations as shown in the Guide Plan. The Town should consider extending sewer service into the industrial areas.

Town and Neighborhood Centers

Section 2, Socio-Economic Development, discusses strengthening the Town Center at the intersection of Routes 38 and 113 with a concentration of municipal uses. Neighborhood-scale commercial uses are an important component of the Town Center to support the Town employees and visitors, although they will not form the defining character of the Town Center. Several concentrations of small-scale commercial uses located in more densely populated parts of the town support the needs of surrounding neighborhoods.

Types of Uses

Dracut should seek to attract a broad range of commercial and industrial uses that provide employment opportunities and are compatible with the residential character of surrounding neighborhoods. The Guide Plan provides ample space for small scale retail uses that can provide specialty shopping and neighborhood convenience, rather than large scale uses, which might face disadvantages competing with nearby New Hampshire retailers, which do not have sales taxes.

Light industrial uses appropriate for Dracut include non-polluting high tech, warehousing, light manufacturing, assembly, and research and development. Transportation and distribution related uses should be discouraged. The Economic Development Strategy Report recommends potential target industrial markets for Dracut to attract, including "1) companies with specialized facility requirements that cannot be easily accommodated by the region's inventory of existing vacant space; 2) cost sensitive users that cannot afford the higher cost of new construction in communities closer to Route 128; 3) industries with low sewage disposal requirements; and 4) companies which may place value in Dracut's existing base of agricultural and extractive resources."

Mill Structures
As explained in the Economic Development Strategy Report, the existing zoning regulations do not support the viable reuse of the historic mill structures at Collinsville and Navy Yard. The Guide Plan for Future Land Use suggests some types of uses that might be appropriate for these structures, including office use or "incubator" space for smaller industrial businesses, or mixed commercial and residential use. Section 8, Implementation, describes specific regulatory options to apply to the mill complexes.

Organizational Capacity
Currently the office of the Town Manager is the entity that fields economic development inquiries from potential developers. An additional economic development entity might be of help to land owners, developers, and Town officials and provide information and support to marketing efforts. One option discussed in the Economic Development Strategy Report is to establish (or revive) an economic development organization in the town, such as an Industrial Commission/Economic Partnership. Another option is to expand the capacity of the Town Manager's office to focus on economic development issues with an Assistant Town Manager, Town Planner, or other support staff.

Economic Development Strategy Report Recommendations
The following are business advocacy functions that the Economic Development Strategy Report recommends to be carried out by the Town's economic development organization:

- Serve as the Town's contact with State, neighboring local and possible future regional economic development organizations/initiatives.
- Provide policy recommendations to the Board of Selectmen.
- Pursue outside funding support for local economic development initiatives.
- Advocate the formation of a local Chamber of Commerce, Board of Trade or similar private business organization in Dracut.

The Economic Development Strategy Report also provides the following recommendations for marketing and development activities to be carried out by the economic development organization:

- Maintain an updated contact list of major industrial/commercial property owners in Dracut, particularly those which are known to be actively marketing land or buildings.
- Encourage all interested property owners to provide the Town with updated, active property listing information, including names of current marketing representatives.
- Establish early working relationships with other significant land owners who are not actively marketing sites at present, but may represent longer range opportunities.
- Target marketing initiatives to the "desired" industry groups described above.
- Create the capacity to offer financing assistance to local businesses.
- Establish contact with the ownership of the Towns two mill complexes.

3.0 Housing

Compact Housing
Besides preserving rural character, encouraging a more compact pattern of residential development in place of dispersed low density housing will also reduce the costs related to infrastructure (roads, water, sewer, etc.), and possibly the numbers of additional schoolchildren if a diversity of housing types is developed. Cluster development (called Open Space Residential development in the Zoning Bylaw) is a useful tool to promote compact housing and preserve open space. Other alternatives for encouraging open space preservation in combination with residential development are included in the Open Space and Implementation sections.

Regulatory Changes
Changes to the density of residential development are discussed in Section 1, Land Use. In addition to these changes, the Town may wish to consider requiring cluster development in certain areas where it would like to protect natural resources and agricultural land. Section 8, Implementation, discusses specific recommendations for changes in the bylaws.

Development Standards
Site plan review for larger residential development projects, as well as strict enforcement of codes for all existing homes and new projects will ensure that development meets appropriate standards and is not overcrowded.

Grandfathered Lots
Although zoning requires larger lot sizes for new development, houses in some neighborhoods are typically on lots as small as 10,000 square feet, and many small vacant lots in these neighborhoods are grandfathered to allow development. Infill within and adjacent to higher density neighborhoods is to be encouraged where water and sewer capacity exist to support it, except in the area around Long Pond. However, such lots should be utilized for smaller homes, which are needed in the current market, rather than large homes. New regulations to control the size of structures on smaller lots may be required. A recent proposal to address this problem in Wayland is shown in Appendix 1-3.

Services
Infrastructure and amenities which contribute to the quality of residential neighborhoods include water and sewer facilities, roads, recreation facilities, landscaping, and social services. The best locations for higher density development take advantage of existing or proposed infrastructure that are of sufficient capacity to provide for the residents of a development. Some of these services may be provided in conjunction with the development of a residential project; the Town may require such services to be provided to serve a given development as a condition for approval.

Specialized Housing
Specialized housing includes housing for seniors, handicapped persons, young adults, and other persons for whom detached single family homes are not a viable option. A range of housing types exist to meet the needs of the elderly and physically impaired. Some housing might be located in a group environment, with arrangements that provide independent living, assisted living, congregate housing, and/or on-site health care facilities. Apartments, townhouses, and condominiums can also meet the needs of seniors, young adults, and other segments of the population. Specialized housing is needed for various income levels, including units that are affordable for low and moderate income persons and market rate units. The former mill structures at Collinsville and Navy Yard are possible sites to provide specialized housing.

Affordable Housing
The Town can undertake specific measures to encourage the development of affordable housing. Affordable housing might take the form of homes for purchase or rent, multifamily units, or senior housing, and may be located in mixed income developments. A local housing partnership, as mentioned above, can help to promote the development of housing to meet the needs of low and moderate income persons. Negotiation with developers seeking comprehensive permits through the State's Local Initiative Program (LIP) under Chapter 774 will ensure that such development meets the Town's standards and avoid litigation. Establishing guidelines for higher density development than is permitted to be developed by right or with a special permit under the zoning bylaw can help to increase the Town's control over development that takes place under a comprehensive permit.

The Town can also encourage the development of more affordable housing through the use of inclusionary zoning, whereby any residential development over a specific threshold will trigger a requirement to provide a number or percentage of affordable units. Such units can be provided either on the development site or by contributing to a fund to create affordable housing elsewhere in Dracut.

Entity to Diversify Housing
A non-profit housing corporation or local housing partnership can function to identify housing needs and pursue private or government assistance to meet those needs. The Dracut Housing Authority deals primarily with low income housing. Another entity is needed to focus on creating new moderate income and special needs housing. Such an entity can also participate directly in the State's LIP program.

4.0 Environment & Open Space

Based on public input provided at community master plan meetings and through the two recent surveys, Dracut residents are in firm agreement that the Town needs additional protected open space. What is less clear is how the Town should acquire this open space, and how much money it is willing to spend to do so. The recommendations in Section 4 of the Master Plan for open space protection include low-cost and full cost mechanisms, as well as legal protections. Given the substantial amount of open space that the Town will need to acquire in the upcoming years to meet its goals, it will be necessary to implement many or all of the detailed recommendations contained in Section 4.

These include:

Open Space:
- Acquisition of more open space land
- Protection of open space
- Farmland preservation
- Cluster zoning
- Greenways

Natural Resources:
- Freshwater resources protection
- Wetlands protection

- Groundwater protection
- Fisheries and wildlife
- Other environmental resources

5.0 Historic & Cultural Resources

1. Support the Historic Commission in their efforts to identify, protect and educate about Dracut's historic and cultural resources.

2. Survey and identify Dracut's historic and cultural resources. The Town has applied to the State for a grant to do such a survey.

3. Nominate certain identified historic sites to the federal and/or State Register of Historic Places.

4. Consider the establishment of one or more local historic districts which would provide greater protections than federal or state designations. Such local districts may include: Dracut Center at Bridge and Arlington Streets; and, the Collinsville mill building district near the intersection of Mammoth Road and Lakeview Avenue.

5. Prepare historic signage and markers to identify historic and cultural places to heighten public awareness of these resources.

6. Prepare educational literature about Dracut's historic and cultural places to expand public awareness of these resources.

6.0 Public Facilities

When the various facilities improvements now in planning are constructed, Dracut will have largely remedied past deficiencies and will be well on the road to meeting its needs for the intermediate range future. In spite of this significant and ambitious construction program, however, certain long term needs will require still additional efforts. For instance, the school expansion program now planned and underway is only estimated to meet school population growth demands until the middle or latter part of the next decade. Beyond that time frame, yet additional school expansions will likely be required. The School Department is now assessing these long term needs and will issue its findings by the end of 1998.

When the construction program cited above is fully realized, the Town will also have newly available to it several surplused properties as well - the Navy Yard and Kenwood Fire Stations, the old firehouse adjacent to Town Hall, possibly the Town Hall Annex, and the Sewer and Parks Department garages on Lakewood Avenue. Some of these surplused properties may be regarded as an opportunity to provide additional facilities to the community that are now lacking.

Capital facility and operations planning will not end with the completion of this current construction program, however. Capital planning is an ongoing effort since demands for town services continuously change - due either to population growth, higher expectations for services by the town's residents, or both. Therefore the Town, through its Capital Planning Committee,

annually prepares and updates a 5-Year Capital Plan (or, Capital Improvement Program) to anticipate, schedule, and budget foreseeable facility needs. This Capital Plan is formulated in consultation with, and at the request of the various Department Heads. The process of anticipating capital needs in Dracut now appears to be exemplary and the annual 5-Year Capital Plan is the single most comprehensive vehicle to forecast and document the Town's facilities needs and priorities within fiscal constraints.

7.0 Transportation

Arterial Streets
As stated in the Guide Plan for Future Land Use, it is recommended that future industrial growth be concentrated along Route 113 in East Dracut. It is anticipated that sufficient capacity will exist in this corridor to accommodate the needs of businesses that might locate there. In other areas of the town, commercial and industrial development will be sufficiently dispersed so as not to warrant increases in roadway capacity -- i.e., new streets or additional travel lanes on existing streets. Mammoth Road is heavily traveled but anticipated growth in residential development in the corridor is unlikely to warrant increases in street capacity, although future growth in New Hampshire may increase volumes. Lakeview Avenue is the only other congested corridor in the town and it is presently targeted for improvements. No new arterial streets are recommended for construction.

Access Management Guidelines on Major Arterials
The traffic congestion and conflicts that exist on Lakeview Avenue are the primary result of poor access design and control. The town must discourage the location of multiple, closely spaced access driveways along major streets. The Town of Dracut Zoning By-Laws and special permit requirements call for a review of development projects by appropriate town boards and professional staff. It may be desirable to establish definitive access management guidelines that would be applied to all new developments sited along a major arterial. These guidelines would establish minimum separation between driveways and traffic signals and median openings; require the safety of turning movements into and our of properties; require turning/ acceleration/deceleration lanes where necessary; and require the timing and coordination of traffic signals in major corridors (if appropriate).

Residential Street Location and Design
It will be important to maintain a functional street hierarchy when locating new residential subdivision roads in areas not currently well served by collector streets. In order to keep through traffic off of local residential streets, new residential streets must connect with collector streets which, in turn, should intersect with larger arterials. Approvals of new subdivisions should be conditioned on the proper location of their access road(s), as well as appropriate design of street cross-section.

Crosby Road/Marsh Hill Road/Methuen Road should be monitored closely as it may become more of a collector road than a local road with increased residential development in East Dracut. It may be necessary to widen and/or improve the geometry of this east-west access road if substantial new residential development requires access onto these roads.

Many residential streets in the town are already in violation of this functional hierarchy guideline. Because they intersect directly with higher order streets, they may become candidates for cut-through traffic. To deal with these situations, consideration should be given to the adoption of a

town-wide traffic calming policy that describes the procedures by which residents can initiate a traffic calming study and the range of traffic calming techniques that will be evaluated.

Sidewalk Expansion Program
An environment that ensures pedestrian safety should be created by providing sidewalk connections along all congested streets between densely populated residential areas and nearby businesses and other major destinations (e.g., schools, recreation areas). Annual contributions to a sidewalk fund should be made so new or improved sidewalks can be constructed annually in compliance with a town-wide, sidewalk capital improvement plan.

Expansion of Non-traditional Transit Services
A single fixed-route bus service currently operates along the most densely populated streets in south and west Dracut. Residential densities in other areas of the town will not support additional fixed route bus services upon build-out. However, as the elderly and school populations increase in the town, off-peak van and minibus shuttle services like those offered by the LRTA and Council on Aging will almost certainly need to be expanded to service senior living facilities, schools, and other activity centers.

Establish Dracut Trails Committee
An expanded network of bikeways and walking trails should be established throughout the Town as an alternative mode of transportation and recreation. To coordinate with the efforts of adjoining communities, and to solicit special funds, a Dracut Trails Committee should be established to identify and prioritize a system of trails and greenways. The increase in residential development anticipated in the Kenwood neighborhood along the Merrimack River should be coordinated with development of a path system ("Merrimack River Trail") that connects with the pipeline or other easements in East Dracut.

Regional Planning Initiatives
Economic growth in Dracut is hampered by the lack of a direct connection to Routes 3, I-93, or I-495. Conditions on these regional highways also affect traffic on Dracut streets as motorists find alternates routes to avoid congestion. The Town of Dracut must take an especially active role in promoting the expansion of Route 3 so that the functional integrity of that highway can be maintained. Representatives of the town should also continue to be active participants in the planning process of the Northern Middlesex Council of Governments, and encourage plans in neighboring communities that would improve access from Dracut to the regional highways.

8.0 Implementation

The implementation recommendations are contained in Section 8, Implementation Plan

Section 1:
LAND USE

Section 1: LAND USE

Land use is the key element in the town's master plan. The use of land is central to the function and character of the community. All other systems support the use of the land, including transportation, public facilities, environmental protection and regulatory controls. The community's future well-being and economic potential is directly related to the future use of the town's land.

Dracut is primarily a residential community. The western half of the town is more suburban in character, while the eastern half is more rural with an increasing amount of industrial development. This reflects the distinct historical development pattern. The Merrimack Mills at Collinsville were the first in America to manufacture cloth - 60 years before the Town of Lowell began building its mills. There has been a mill on Beaverbrook in the Navy Yard since 1763. A significant amount of land remains in agriculture and open space, contributing to the rural character of the town in the easterly section known as East Dracut. Much of this undeveloped land is not protected, however, and may be converted to residential or commercial use if the market conditions comply. The purpose of developing a land use plan is to provide a guide for land use changes accompanying growth, while controlling the extent to which future development transforms the attractive character of the town.

1.1 LAND USE INVENTORY

The predominant land use pattern in Dracut is residential with community-focused commercial uses and some industrial uses. The historic neighborhoods that define the town can still be recognized, although their distinctions are fading with recent land use changes. New residential development is filling in open spaces with a homogenous character, and traffic impacts from residential and commercial development are becoming as much of an issue in rural East Dracut as in other neighborhoods. Aside from market forces, other factors that determine changes in the land use pattern include availability of utilities, soil suitability, topography, regional economics, accessibility and similar opportunities and constraints.

The current land use inventory was conducted by means of a number of methods. MassGIS (Executive Office of Environmental Affairs) provided land use data based on 1991 aerial photography, which was very valuable as a starting point. An updated 1998 land use map was compiled through the combination of these aerial photographs, field surveys, the Open Space and Recreation Plan, Conservation Commission, Planning Board records and other Town records (see Figure 1-1).

Tabulation of Existing Land Use
The mapped areas were measured to determine the acreage in each category of land use. This information is shown in Table 1-1.

Table 1-1
Existing Land Use (1998)

Land Use	Acres	Percent of Total Town Area	Percent of Developed Land Area
Residential	4,152.1	30.4%	60.9%
(Single-family)	(3,863.7)	(28.3)	(56.7)
(Multifamily)	(288.4)	(2.1)	(4.2)
Mixed Use (residential/commercial)	37.3	0.3	0.5
Commercial	206.8	1.5	3.0
Industrial	112.4	0.8	1.6
Mining	311.4	2.3	4.6
Public/Semi-Public	1,092.8	8.0	16.0
Recreation	(69.7)	(0.5)	(1.0)
Other public/semi public	(139.9)	(1.0)	(2.1)
Protected open space	(883.2)	(6.5)	(12.9)
Transportation and Utilities*	905.5	6.6	13.3%
Total Developed Area	**6,818.3**	**49.9**	
Agriculture	1,876.0	13.7	
Other undeveloped	4,584.0	33.5	
Total Undeveloped Area	**6,460.0**	**47.3**	
Total Land Area	**13,278.3**		
Water	392.1	2.9%	
Total Town Area	**13,670.4**		

Source: MassGIS and John Brown Associates, Inc.

* Roads were not accounted for in the land use maps provided by MassGIS, thus a portion of land was allocated from other categories to account for the area in roads. The area of all roads in Dracut (670.5 acres) was calculated from street mileages and ROW widths provided by the Massachusetts Highway Department. This was added to other transportation and utility acreage to provide total area in transportation and utilities use.

An analysis of each type of land use in Table 1-1 is provided below.

Developed Land

The Town of Dracut contains approximately 13,670 acres (21.36 square miles) of which 13,278 acres are land and 392 acres are water bodies. Developed land (not including protected open space) comprises 5,935 acres, or 43% of the town's total area.

Residential Uses

The predominant developed land use in Dracut is residential, constituting 60.9 percent of the developed land area. Of the residential uses, single-family homes constitute the vast majority of the residential development. There currently are about 7,463 one-family homes, 788 two-family units, and approximately 2,201 multifamily and other types of dwelling units in Dracut. A total of 3,864 acres is in single-family residential development, while 288 acres is in multifamily development. Additional information on the characteristics of the housing stock is contained in the section on housing. Much of the residential development is located in the western portion of

Dracut, in the Navy Yard, Collinsville, and Dracut Center neighborhoods (and portions of the Kenwood neighborhood), which have the highest density of homes. East Dracut is more sparsely developed.

Commercial Uses
Commercial uses make up 207 acres, or 3.0% of the developed land area. Most of the retail facilities are located along Route 110 in Kenwood, along Routes 38 and 113 in Dracut Center, and along Lakeview Avenue in the Collinsville and Navy Yard neighborhoods.

Industrial Uses
Industrial uses comprise 112 acres or 1.6% of the developed land area. Industrial uses are located along Route 113 in East Dracut and Lakeview Avenue in the Navy Yard and Collinsville neighborhoods.

Mining
There are 311 acres of land used for active mining (largely sand and gravel operations). Two major mining sites are located along Colburn Avenue and Route 38 near the New Hampshire border and in the Kenwood neighborhood north of Route 110 and Methuen Street. Mining comprises 4.6% of the developed land area. Much of this land may become developable at some point in the future.

Public and Semi-Public
Within this category are three distinct types of land use, including recreation, waste disposal facilities, and other facilities that are either publicly-owned or are institutions which serve the public, such as churches and non-profit organizations. Together, public and semi-public uses comprise 210 acres, or 16.0% of the developed land area.

Recreation This category consists of a number of active recreation facilities, including playfields, parks, and recreational marine facilities. These are described in more detail in the public facilities section. The total land area in this category is 70 acres.

Protected Open Space As of June, 1998, there were 834 acres of protected open space in Dracut, including land managed by the Conservation Commission, private non-profit land preservation organizations, the Commonwealth of Massachusetts (Lowell Dracut State Forest), land with Agricultural Protection Restrictions (APR), and private individuals. Protected open space covers 6.5% of the Town's land area.

Other Public/Semi-Public This category includes public property and institutional uses that are privately owned, but which are open to and serve the public. Public property is land serving the public which is owned by a public body, including such uses as public schools, waste disposal facilities, the library, Town Hall and Annex, Town parks and Town cemeteries. These are described in the Public Facilities Section. Examples of other institutional uses include private schools, places of worship, private cemeteries and fraternal or service organizations. Public and institutional uses are located in widely scattered areas of the town, totaling 140 acres.

Transportation and Utilities
This category includes 670 acres of local roads and 235 acres covered by transmission lines. Transportation and utilities represent 13.3% of the total developed land area, including all town, state and county roads in Dracut as well as a number of private ways open to the public.

Vacant and Undeveloped Land
There are approximately 6,464.0 acres of vacant and undeveloped land in Dracut, including 1,876 acres of agricultural land, representing 47.3 percent of the town's total land area.

Vacant Land There are 4,544.0 acres of vacant land in the town (33.5% of total town area), not counting agricultural land. Much of this land is undevelopable because of the presence of wetlands, unsuitable soil types, or other considerations. The amount of land that is actually developable is quantified under the Buildout Analysis.

Agriculture A significant portion of the town's undeveloped land is in agricultural use, including plant nurseries, minor crops and hayfields. Approximately 1,876 acres are used for agriculture, or 13.7% of the town's total area. Many of these lands are taxed under Chapter 61, 61A and 61B; however, these provisions do not provide permanent protection from future development. Some agricultural lands which have APR status are more securely protected.

Water Bodies
Water bodies comprise 392 acres, or 2.9% of the town's total area. Water bodies include Long Pond, Cedar Pond, Peters Pond, the Merrimack River, Trout Brook, Bartlett Brook, Peppermint Brook, Beaver Brook, and various other ponds, rivers, and streams.

1.2 BUILDOUT ANALYSIS UNDER EXISTING ZONING

The amount of developable land in Dracut was determined by subtracting the developed land and undevelopable land from the total land area. Developed land includes all land shown to be in residential, commercial, or industrial use, as well as transportation and public/semipublic lands. Undevelopable land includes wetlands, water, and power lines shown on the MassGIS 1991 land use map, combined with wetlands and water shown in the USGS map, and FEMA flood zones. Also included as undevelopable are public and privately owned protected open space (does not include lands under temporary protection).

Table 1-2
Quantities of Developable/Undevelopable Land

Total Town Area	13,670 acres
(less) Land Already Developed	5,804
(less) Wetlands and Water	1,486
(less) Flood Zones (FEMA)	979[1]
(less) Protected Open Space (uplands only)	586[2]
Available Developable Land	4,815 acres

[1] Excludes areas where flood zone coincides with wetlands and water.
[2] An additional 297 acres of protected open space is included under wetlands.

Of the total vacant land in the town, 2,465 acres are not developable because they are either wetlands, water or flood zone. An additional 586 acres of uplands are protected open space. Approximately 4,815 acres, or 45% of the developable land in the town remains for potential development.

The developable land was identified by zoning district and zoning regulations were applied to determine the buildout capacity (see Appendix 1-1 for specifications and Figure 1-2, Zoning). The following table shows the number of residential units and the amount of commercial space that can be developed under current zoning regulations.

Table 1-3
Development Capacity Under Current Zoning

Zoning District	Acres	Development Capacity
Residential 1	4,412.3	3,839 dwelling units (d.u.)
Residential 2	381.4	164 d.u.
Residential 3	362.1	315 d.u.
Business 1	19.4	11 d.u. 177,500 s.f.[1]
Business 2	0.2	-
Business 3	85.4	930,000 s.f.
Business 4	40.6	619,000 s.f.
Business 5	5.5	88,600 s.f.
Industrial 1	300.5	14,660,600 s.f.

[1] Both single-family residences and retail uses are permitted by right in this district. The developable area was divided, placing 65% in retail use and 35% in residential use.

Table 1-4
Summary of Total Buildout Capacity

Total Residential Units	4,329 dwelling units
Total Commercial/Retail	1,815,100 square feet
Total High Tech/Light Industrial	14,660,600 square feet

Land Use Impacts

Full buildout represents long term impacts from potential growth. Market forces and the ability of the Town to provide amenities to meet resident and business needs will determine the rate at which development takes place in the short term.

Residential Development
The number of housing units can increase by about 4,329 single-family homes. This does not include two-family units or multifamily units, which are allowed by special permit in the R-3 district. (The B-1 district also allows two-family units.) Multifamily developments may contain up to 4.4 units per acre. In 1998 the total number of housing units in the town was 10,473 units. The total number of housing units in the town can potentially grow by 41% under existing zoning.

The population growth that would accompany the increase in housing units would represent significant costs to the town for education and other public services. Using estimates from the Massachusetts Department of Housing and Community Development (DHCD), the number of

residents may increase by about 15,671 persons. This represents a growth of 58% over the 1998 population of 26,896 persons. Education represents a major fiscal cost, thus the number of school aged children that will result from growth is an important impact to consider. According to indexes from DHCD, the number of school-aged children could increase under existing zoning by approximately 3,766 children[1]. The increase in the number of school children is less when multifamily units take the place of some single-family development.

Anticipated Growth Rate. Table 1-5 shows a projection of residential growth in the Town based on NMCOG and our own estimates. Note that the NMCOG projection to the year 2000 is too high considering the existing number of units in 1998.

Table 1-5
Projections of Residential Growth

	NMCOG Estimate			Revised Estimate [1]		
Year	Total Units	Units Added	Units/Year	Total Units	Units Added	Units/Year
1990	8,992			8,992		
1998	-			10,473	1481	148
2000	12,629	3,637	364	10,773	300	150
2005	14,053	1,424	285	11,483	710	142
2010	15,089	1,036	207	12,003	520	104
2020	15,762	673	67	12,343	340	34
		1,074			3,351	
					(1,870 after 1997)	

[1] Based on current market trends in Dracut and the Region.

The projected residential growth (under the revised estimate) would yield a population increase of about 3,482 new residents by 2020, including about 1,090 new school children. A higher estimate of persons per household is used in the short term to reflect the larger families that typically occupy the four bedroom single-family homes that are now being constructed. In the long term it is expected that Dracut will follow the national trend of declining household size.

Nonresidential Development.
Developable land for retail and service use in Dracut yields a potential capacity of 1,815,100 square feet under existing zoning. Land that is developable for light industrial or high tech use could yield up to 14,660,600 square feet of building area. These figures are for full buildout, which may be many years in the future. The commercial development that can take place in Dracut represents the potential for about 4,034 additional retail/service jobs and 14,661 manufacturing jobs (estimating 1 employee per 450 square feet for office and retail space and 1 employee per 1,000 square feet for industrial space.) In contrast to residential growth, industrial and commercial growth represent less of an increase in costs of government services; however, they do have requirements for infrastructure which can be costly.

[1] Most single-family homes being constructed in the current market have four bedrooms or more. The number of school children per unit is estimated by DHCD at 0.87 for a four bedroom home, and 0.17 for a multifamily unit. The number of persons per household is estimated at 3.62 for a for a four bedroom home, and 1.69 for a multifamily unit.

Anticipated Growth Rate. An optimistic absorption rate for industrial development in Dracut in the short term may be 75,000 to 125,000 square feet per year. Improvements in local infrastructure, such as the provision of sewers in the industrial areas, or regional factors may affect the rate of growth in the long term. The following table shows a projection for commercial and industrial growth over the next 20 years.

Table 1-6
Potential Industrial and Commercial Growth by Ten Year Intervals[1]

Year	Total Space	Space Added	Square Feet/Year
1998 Total	2,045,000		
2000	2,195,000	150,000	75,000
2010	3,195,000	1,000,000	100,000
2020	4,445,000	1,250,000	125,000
		2,400,000	

[1] Based on recent market trends in Dracut and the region.

1.3 LAND USE GOALS

The following goals and policies related to land use and community character have evolved from the neighborhood meetings, the public forums, and other community input. Some of these goals also relate directly to other Master Plan Elements.

1. Manage residential, commercial, industrial and recreational development in a way that carefully balances growth and economic benefit with the need to protect the character of existing neighborhoods.

2. Maintain and increase protected open space and recreational land uses.

3. Develop a strategy to retain agricultural and other undeveloped lands important to the character of the community.

4. Reduce the potential for commercial sprawl and strip development.

5. Encourage high quality nonresidential development in appropriate areas to reduce the dependence upon the homeowner for tax revenues.

6. Review and evaluate the existing bylaws, zoning districts and regulations and revise them, where appropriate, to achieve the desired land use goals.

7. Allow no more commercial use than is necessary. Cluster commercial uses in strategic locations.

8. Link open spaces to create networks and to separate neighborhoods and land uses.

9. Reserve sufficient land for community facilities to serve future land uses.

10. Coordinate sewer plans with future land use goals. Seek to avoid undesirable impacts from secondary growth caused by sewer expansion.

11. Develop regulatory tools to further encourage clustering of residential development and diversity of housing density.

1.4 RECOMMENDATIONS: GUIDE PLAN FOR FUTURE LAND USE

The Guide Plan for Future Land Use (see Figure 1-4) is based upon the following:

- Existing land use patterns
- Community goals and objectives
- Community survey
- Analysis of impacts of alternative plans
- Long-range community needs for housing, economic growth, transportation, public facilities, open space, and recreation
- Long-range sewage disposal planning
- Environmental and geographic concerns and limitations
- Feedback from Town officials and citizens
- Sound land use planning

The Guide Plan is a long-range projection of the most desirable future land uses at specific locations in the town, and may be subject to revision as time passes. It takes into consideration the Town's capacity to accommodate the impacts of future growth as well as the Town's desire to meet future needs (housing, economic development, open space preservation, etc.) The Guide Plan follows quite closely the Composite Plan developed during the consideration of alternative land use scenarios (see Appendix 1-2).

Dracut is a community with a mixture of urban and rural areas. While neighborhoods in the southern and western parts of the town near the border with Lowell and Long Pond are fairly urbanized, other sections of the town, especially East Dracut and along the border with New Hampshire are more rural in character. A considerable amount of land (over 35% of the total land area) is capable of future development, most of which is located in the rural areas of the town. Growth and redevelopment can have a profound effect on the character of the urbanized areas.

The Guide Plan is intended to recommend long term future land use policy. Some of its recommendations can be implemented immediately but others may await changes in real estate market conditions, the availability of needed infrastructure (water, sewer, streets etc.), the availability of Town funds, or private land use decisions. The plan will also provide guidance for future zoning map changes, although some additional study may be required to identify exact or appropriate boundaries for specific map changes. Means of implementing the recommendations of this plan are discussed in Section 8, Implementation.

Land Use Categories

Low Density Residential – Minimum lot size is 80,000 square feet, resulting in a dwelling unit density of 0.43 units per acre. This category corresponds to the current R-2 zoning district.

Low-Moderate Density Residential – Dwelling unit density is estimated at 0.58 units per acre (including streets). The minimum lot size is 60,000 s.f.

Moderate Density Residential – As currently permitted in residential districts throughout most of the Town, the minimum lot size is 40,000 s.f., or 0.87 units per acre.

High-Moderate Density Residential – Dwelling unit density is estimated at 1.16 units per acre (including streets). The minimum lot size is 30,000 s.f.

Multifamily – Designated for high density residential development at a maximum density of 8 units per acre. Under current zoning regulations multifamily development may take place with a special permit in the R-3 district. Much of future high density residential use in Dracut is expected to be focused toward special needs housing for seniors and other specific groups.

Retail/Residential – Similar to requirements of the existing B-1 district, which allows limited small scale commercial use (up to 5,000 s.f.) as well as one- and two-family residences. The minimum lot size for residences is 22,000 s.f. The development density is estimated at a maximum 0.50 FAR (floor area ratio) for commercial and 1.55 dwelling units per acre for residential.

Neighborhood Retail/Service – Similar to the requirements of the existing B-2 district, which allows a broader variety of small scale commercial uses (up to 5,000 s.f.) but no residences. Maximum FAR is recommended to be 0.50.

Mill Village – A special category just for the older mill buildings that will encourage their viable reuse, allowing mixed residential and commercial uses. The density will depend upon the particular mix of uses that is applied.

Highway Business – Allows a wide variety of large scale commercial uses (over 5,000 s.f.). Similar to the existing B-3, B-4, and B-5 districts. Maximum FAR is recommended to be 0.50.

Light Industrial – Generally corresponds to Dracut's Light Industrial zoning district. Maximum floor area ratio is recommended at 1.00, which is comparable to current practice.

Open Space – This is a designation for land that is already in open space and passive recreation use or is proposed for such use. An effort has been made to link existing open space areas to form open space networks.

Public/Institutional – Includes land in public or institutional use or proposed for such use.

Commercial/Business Development

In order to preserve the character of existing neighborhoods, large scale commercial development is limited to an area located along Route 38 (Bridge Street) which is designated as Highway Business and to the intersection of Pleasant Street and Hildreth Streets where the Shop & Save supermarket is located. Commercial areas in all other parts of the town are reserved for smaller scale uses. This reflects existing development and encourages future development and redevelopment along similar lines. Smaller scale commercial areas are divided into two categories (similar to existing zoning districts). One allows a mixture of commercial uses and single- and two-family residences (Retail/Residential), while the other allows only commercial use (Neighborhood Retail). The Neighborhood Retail category is designated in the town center, as well as sites along Lakeview Avenue where more concentrated neighborhood commercial uses are appropriate. The Neighborhood Retail area at the intersection of Route 113 and Arlington Street is expanded beyond the current commercial zoning district to reflect existing land uses.

Retail/ Residential use is designated for other areas which are currently zoned for commercial use but are not appropriate for large-scale or intensive commercial development.

Industrial/High Tech. Future industrial and high tech use is concentrated in East Dracut along Route 113 (Broadway) and Methuen Street near the border with Methuen, largely reflecting the areas currently zoned for industrial use. The extent of the area recommended for industrial use is decreased from existing zoning along Loon Hill Road and to the rear of Route 110 to reflect existing uses and to protect residential neighborhoods from the potential impact of future industrial development.

As indicated in the existing zoning, no heavy industry is recommended. Light industrial uses appropriate for these areas would include non-polluting high tech, warehousing, light manufacturing, assembly, non-polluting electric power generating facilities, and research and development. Industrial areas should not be used for truck terminals or additional distribution centers. Campus-style office and industrial parks are to be encouraged.

Mill Villages
Viable reuse of the historic mill buildings at Collinsville and Navy Yard could include a mixture of multifamily residences to meet specific needs (such as elderly housing) and limited commercial uses. Other alternatives might include office use or "incubator" space for smaller industrial businesses. Some incidental convenience retail and service uses could also be allowed. Parking is likely to be a major constraint for any type of use that is considered. Alternatives for implementing the reuse of the mill structures are discussed further in Section 2, Socio-Economic Development and Section 8, Implementation.

Residential Development
The Guide Plan recommends a more varied pattern of housing density, with higher density in the south and west portions of the town near the border with Lowell, and lower density in East Dracut and along the northern border with New Hampshire. Sites which have been identified as appropriate for multifamily development include the area along Route 38 just south of the intersection with Cross Street, along Textile Avenue near the border with Lowell, and on Mammoth Road. Use of cluster development and transfer of development rights could also contribute to increasing the variety of residential development and maintain the character of existing neighborhoods. Protection of open space can help to define the boundaries of distinct residential areas. Options for protecting open space in combination with residential development are discussed further in the Open Space and Implementation sections.

Open Space/Recreation
The Guide Plan identifies areas throughout the town which are recommended for open space protection. These areas include wetlands, floodplains, lands currently classified under Chapter 61, and key tracts of land currently in agricultural use. The Guide Plan also attempts to link many of these parcels to create open space networks, making open space accessible to residential areas, water bodies, and the Town Center. Future protected open space will likely be in a mixture of public and private ownership. Recreation facilities, including ball parks, swimming, hiking trails, neighborhood parks, etc., may be accommodated in some of the areas that are recommended for open space protection.

Public/Semi-Public
The Guide Plan shows existing public and semi-public lands and their relationship to other uses. Future expansion of public facilities can be accommodated through reuse of developed lands or in

less sensitive areas that are proposed for open space. Section 2 (Socio-Economic Development) discusses the identification of a more defined Town Center.

Impacts of Development

A buildout analysis was prepared showing the long term impacts of development under the Guide Plan for Future Land Use. Growth in the short term is expected to resemble the trends shown in Tables 1-5 and 1-6 regardless of changes in land use policy. Table 1-7 shows the amount of development that can take place at full buildout if the recommended land use policies are implemented.

Table 1-7
Development Capacity Under Guide Plan for Future Land Use

Use Category	Acres	Development Capacity[1]
Low Density Residential	309.5 acres	133 dwelling units (d.u.)
Low-Moderate Density Residential	1,807.7	1,048 d.u.
Moderate Density Residential	909.8	792 d.u.
High Moderate Density Residential	305.0	354 d.u.
Multifamily Residential	20.5	164 d.u.
Retail/Residential	21.0	16 d.u. and 150,900 square feet (s.f.)
Neighborhood Retail/Service	10.2	146,800 s.f.
Mill Village[2]	-	0 s.f.
Highway Business	12.8	195,200 s.f.
Light Industrial	271.5	13,245,700 s.f.
Protected Open Space (Developable Land)	1,953.7	
Total Developable Land (Acres)	5,621.8 acres	
Total Open Space[3]	4,312.5 acres	

[1] The buildout specifications are the same as those proposed for the Alternative Scenarios, shown in Appendix B.
[2] The area within the proposed Mill Village category totals 16.2 acres, about 5.5 acres of which is developed, while much of the undeveloped portion is covered by wetlands. All remaining land is needed to support the use of the existing structures, and therefore is not considered to be developable. A discussion of the potential development of the mills is continued in Section 2, Socio-Economic Development.
[3] Includes existing open space, new open space on developable land, and new open space on land that is undevelopable (i.e., wetlands, floodplains).

Table 1-8
Summary of Total Buildout Capacity Under Guide Plan

Total Residential Units	2,507 dwelling units
Total Commercial/Retail	492,900 square feet
Total Light Industrial/High Tech	13,245,700 square feet

Using the same DHCD population per household indexes as used to calculate the potential impacts under existing zoning, full buildout under the Guide Plan for Future Land use would result in a total population of 35,655, including 2,066 additional schoolchildren. This represents a population growth of 33% over 1998. Not counting the future commercial and industrial development, the potential water use at this level of development would be 2,638,470 gallons per day, based on water use estimates for the Town of Dracut of 74 gallons per person per day[1]. The industrial and commercial space at full buildout can accommodate approximately 14,300 additional employees.

The above summary of total buildout capacity under the recommended Guide Plan for Future Land Use represents the amount of development possible if every parcel of developable land is developed. Due to the limitations of market absorption, full buildout may be 40-50 years in the future. Tables 1-5 and 1-6 show projections of potential residential and nonresidential growth up to the year 2020. Substantial land for additional growth will remain at that time. Residential growth is expected to take place at a faster rate than commercial and industrial growth.

[1] Includes total current water use for 1998 plus projected residential water use at full buildout.

Appendix 1-1
Buildout Specifications Under Existing Zoning

Zoning District	Formula	Derived from following constraints:
Residential 1 [1]	0.87 units/acre	Minimum lot size 40,000 square feet (Section 2.12.50)
Residential 2	0.43 units/acre	Minimum lot size 80,000 square feet (Section 2.12.50)
Residential 3	0.87 units/acre	Minimum lot size 40,000 square feet (Section 2.12.50)
Business 1 [2]	1.55 units/acre and 0.33 FAR [3]	Minimum lot size 22,000 square feet, Yards: front – 30 ft, side – 20 ft, rear – 15 ft [4], Maximum height 2.5 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24) [5]
Business 2	0.33 FAR	Yards: front – 30 ft, side – 20 ft, rear – 15 ft, Maximum height 2.5 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24)
Business 3	0.25 FAR	Yards: front – 50 ft, side – 30 ft, rear – 20 ft, Maximum height 2.5 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24)[6]
Business 4	0.35 FAR	Yards: front – 100 ft, side – 15 ft, rear – 40 ft, Maximum height 3 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24)[7]
Business 5	0.37 FAR	Yards: front – 50 ft, side – 15 ft, rear – 20 ft, Maximum height 2.5 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24)[8]
Industrial 1	1.12 FAR	Yards: front – 100 ft, side – 15 ft, rear – 40 ft, Maximum height 5 stories (Section 2.12.50), Parking = 1 space/200 square feet (Section 3.10.24)[9][10]

(1) For all residential districts developable area is reduced by 20% to account for streets and wastage.
(2) Both single-family residence and retail uses are allowed by right in the B-2 district.
(3) FAR stands for effective floor area ratio after all dimensional and density restrictions are applied.
(4) Section 3.10.41 specifies that off-street parking is not permitted within 15ft of roadways or within yards abutting residential or institutional uses. For districts B-1 and B-2, parking was excluded from 20% of the lot area in order to approximate this requirement.
(5) For all non-residential districts 400 s.f. per parking space is estimated to include parking spaces, roadways and landscaping. It is assumed that all parking takes place on surface level lots.
(6) For the B-3 district, parking was excluded from 40% of the lot area to approximate the requirements of Section 3.10.41.
(7) For the B-4 district, parking was excluded from 15% of the lot area to approximate the requirements of Section 3.10.41.
(8) For the B-5 district, parking was excluded from 10% of the lot area to approximate the requirements of Section 3.10.41.
(9) Section 3.10.24 requires 1 space per 1.4 employees. It is assumed that industrial uses will have 1 employee/1000 square feet.
(10) For the I-1 district, parking was excluded from 30% of the lot area to approximate the requirements of Section 3.10.41.

Appendix 1-2
Alternative Land Use Scenarios

1. Description of Alternative Land Use Scenarios

Three alternative future land use scenarios were developed. The first scenario emphasizes the protection of natural resources, the second emphasizes economic growth, and the third is a composite of the first two.

All three scenarios share the following features:

- Residential, Industrial, and Commercial uses reflect existing zoning and land use, with potential modifications.
- Public/Semi-public and multifamily uses reflect existing land use – with potential additions. (For the moment only multifamily has additional sites. Additional information on specific parcels of interest for future public/semi-public use will be obtained.)
- Existing protected open space with potential additions.
- The following land use categories:

Low Density Residential – similar to existing R-2 district with minimum lot size of 80,000 s.f.

Low-Moderate Density Residential – new category. Minimum lot size is 60,000 s.f.

Moderate Density Residential – similar to existing R-1 district with minimum lot size of 40,000 s.f.

High-Moderate Density Residential – similar to existing R-3 district. Minimum lot size is reduced to 30,000 s.f. (currently 40,000 s.f.).

Multifamily – allows a density of 8 units per acre. (Currently allowed by special permit in R-3 district.)

Retail/Residential – similar to existing B-1 district, which allows limited small scale commercial use as well as one- and two-family residences. (Up to 5,000 s.f. for commercial) The minimum lot size for residences is 22,000 s.f.

Neighborhood Retail/Service – similar to existing B-2 district, which allows broader variety of small scale commercial use but no residences. (Up to 5,000 s.f.)

Mill Village – new category. A special business district just for the older mill buildings that will encourage their viable reuse, allowing mixed residential and commercial uses.

Highway Business – similar to existing B-3, B-4, and B-5 districts (these districts mainly differ in the types of commercial uses allowed, with B-5 allowing adult entertainment). Allows wide variety of large scale commercial uses. (Over 5,000 s.f.)

Light Industrial Use – similar to the existing I-1 district. (Heavy industry is permitted in an I-2 district, but is not located anywhere on zoning map.)

Open Space – includes privately and publicly owned protected open space.

Public/Institutional – includes sites that are currently in this use, and possibly some additional sites.

(Continued)

(Appendix 1-2 Continued)

Scenario 1, Environmental Plan:

- Open Space includes existing protected open space, wetlands, floodplains, Chapter 61 lands, land in agricultural use, linkages.
- Residential density is decreased in East Dracut and along NH border.

Industrial use is decreased along Methuen St.

- Commercial area along Broadway at the Methuen border is reduced and changed to industrial use.
- Commercial areas are reduced along Rte 38 and Lakeview to areas around certain intersections, shown as either Retail/Residential or Neighborhood Retail/Service.
- The commercial area at the intersection of Arlington St. and Broadway is reduced and shown as Retail/Residential.
- The commercial area along Rte 110 is reduced to limited sections between Nassau St. and Varnum Ave.
- The older industrial mill properties in Collinsville and Navy Yard are placed in the Mill Village category.
- Large scale commercial uses are restricted to an area along Rte 38.
- Other commercial areas are shown as either Retail/Residential or neighborhood Retail/Service use.
- A portion of the commercial area just south of the intersection of Rte 38 and Cross Rd, and a portion of the commercial area along Textile Ave near the Lowell border are shown as multifamily.

Scenario 2, Economic Growth Plan:

- Open Space includes existing protected open space, wetlands, and floodplains.
- Residential density is decreased in the northern part of East Dracut and along the NH border.
- The density of the residential area that is zoned for 80,000 s.f./lot is increased to 60,000 s.f./lot.
- The density of the residential area that is currently in the R-3 zoning district (in proximity to the border with Lowell) is increased.
- Commercial area along Broadway at the Methuen border is changed to industrial use. Industrial use is added to the south of this area.
- The older industrial mill properties in Collinsville and Navy Yard are placed in the Mill Village category.
- Some commercial areas at selected intersections along Rte 38 and Lakeview are shown as Neighborhood Retail/Service. Some commercial areas at selected intersections along Lakeview are shown as Highway Business, while other areas that are currently zoned for large scale commercial use are shown as Retail/Residential.
- The commercial area along Rte 110 is reduced to the sections between Nassau St. and Varnum Ave. and south of the industrial area on the eastern end.
- A portion of the commercial area just south of the intersection of Rte 38 and Cross Rd, and a portion of the commercial area along Textile Ave near the Lowell border are shown as multifamily.

(Continued)

(Appendix 1-2 Continued)

Scenario 3, Composite Scenario:

- Open Space includes existing protected open space, wetlands, floodplains, Chapter 61 lands, linkages, and some of the land in agricultural use.
- Residential density is decreased in East Dracut and along NH border as in Scenario 1.
- The density of the residential area that is currently in the R-3 zoning district (in proximity to the border with Lowell) is increased as in Scenario 2.
- Commercial area along Broadway at the Methuen border is changed to industrial use.
- Industrial use is decreased along Methuen St, but more is retained than in Scenario 1.
- Large scale commercial uses are restricted to an area along Rte 38.
- The older industrial mill properties in Collinsville and Navy Yard are placed in the Mill Village category.
- Commercial areas along Lakeview are shown as Neighborhood Retail/Service at certain intersections with some additional Retail/Residential shown in locations between intersections. (This is about halfway between Scenarios 1 & 2.)
- A portion of Rte 38 is shown as Retail/Residential, as in Scenario 2.
- The commercial area along Rte 110 is reduced to the section between Nassau St. and Varnum Ave.
- A portion of the commercial area just south of the intersection of Rte 38 and Cross Rd, and a portion of the commercial area along Textile Ave near the Lowell border are shown as multifamily.

(Continued)

(Appendix 1-2 Continued)

2. Buildout Specifications for Alternative Land Use Scenarios

Land Use Categories	Formula	Notes:
Low Density Residential[1]	0.43 units/acre	Minimum lot size 80,000 square feet
Low-Moderate Density Residential	0.58 units/acre	Minimum lot size 60,000 square feet
Moderate Density Residential	0.87 units/acre	Minimum lot size 40,000 square feet
High Moderate Density Residential	1.16 units/acre	Minimum lot size 30,000 square feet
Multifamily Residential	8 units/acre	Existing zoning allows 4.4 units/acre
Retail/Residential	1.55 units/acre and 0.33 FAR[2]	Similar to Business 1 zoning district[3]
Neighborhood Retail/Service	0.33 FAR	Similar to Business 2 zoning district
Mill Village	[4]	Mixed use – residential and commercial
Highway Business	0.35 FAR	Similar to Business 4 zoning district
Light Industrial	1.12 FAR	Similar to Industrial 1 zoning district

(1) For all residential districts developable area is reduced by 20% to account for streets and wastage.
(2) FAR stands for effective floor area ratio after all dimensional and density restrictions are applied.
(3) It is assumed that parking and dimensional requirements will remain the same as under existing zoning for all nonresidential land uses.
(3) Space in existing structures for reuse only. Density depends on existing space and availability of parking.

(Continued)

(Appendix 1-2 Continued)

3. Comparison of Alternative Scenarios: Developable Land

Land Use	Scenario 1 Environmental Plan	Scenario 2 Economic Growth Plan	Scenario 3 Composite Plan
Low Density Residential	309.5 acres	0.0 acres	309.5 acres
Low-Moderate Density Residential	1,498.3	2,636.7	1,807.7
Moderate Density Residential	1,114.2	2,010.7	909.8
High Moderate Density Residential	23.1	347.9	305.0
Multifamily Residential[1]	20.1	16.9	20.5
Retail/Residential	8.4	44.2	21.0
Neighborhood Retail/Service	0.3	21.4	10.2
Mill Village[2]	-	-	-
Highway Business	16.9	24.3	12.8
Light Industrial	204.4	364.8	271.5
Protected Open Space (Developable Land)	2,426.4	154.7	1,953.7
Total Developable Land (acres)	5,621.8 acres	5,621.8 acres	5,621.8 acres
Total Open Space[3]	4,826.7 acres	2,227.5 acres	4,312.5 acres

[1] Preliminary. We will include additional land in multifamily use if appropriate sites can be found.
[2] The area within the proposed Mill Village category totals 16.2 acres, about 5.5 acres of which is developed, while much of the undeveloped portion is covered by wetlands. All remaining land is needed to support the use of the existing structures, and therefore is not considered to be developable.
[3] Includes existing open space, new open space on developable land, and new open space on land that is undevelopable.

(Continued)

(Appendix 1-2 Continued)

4. Comparison of Alternative Scenarios: Potential Buildout Capacity

Potential Development	Scenario 1 Environmental Plan	Scenario 2 Economic Growth Plan	Scenario 3 Composite Plan
Low Density Residential	133 d.u.	0 d.u.	133 d.u.
Low-Moderate Density Residential	869 d.u.	1,529 d.u.	1,048 d.u.
Moderate Density Residential	969 d.u.	1,749 d.u.	792 d.u.
High Moderate Density Residential	27 d.u.	404 d.u.	354 d.u.
Multifamily Residential	161 d.u.	135 d.u.	164 d.u.
Retail/Residential	7 d.u.	34 d.u.	16 d.u.
	60,400 s.f.	317,700 s.f.	150,900 s.f.
Neighborhood Retail/Service	0 s.f.	307,600 s.f.	146,800 s.f.
Mill Village[1]	0 s.f.	0 s.f.	0 s.f.
Highway Business	257,100 s.f.	370,500 s.f.	195,200 s.f.
Light Industrial	9,972,100 s.f.	17,797,600 s.f.	13,245,700 s.f.
Total Dwelling Units	2,166 d.u.	3,851 d.u.	2,507 d.u.
Office & Retail	317,500 s.f.	996,800 s.f.	492,900 s.f.
Industrial/High Tech	9,972,100 s.f.	17,797,600 s.f.	13,245,700 s.f.
Total Square Feet	10,289,600 s.f.	18,794,400 s.f.	13,738,600 s.f.

(1) Even if no additional development takes place in the Mill Villages, about 398,000 s.f. of space exists for reuse as commercial and residential units. The reuse of the mill structures could provide up to an estimated 205 residential units and 194,400 s.f. of commercial space. The actual density of these uses will depend upon the design standards applied to reuse projects and the capacity to provide parking at these sites.

(Continued)

(Appendix 1-2 Continued)

5. Potential Impacts of Alternative Scenarios (At Full Buildout)

	Dwelling Units	Population[1]	School Children[2]	Residential Water Needs (Gal. Per day)[3]	Commercial & Industrial Square Feet	Employees[4]
Existing Development	10,473	26,896	4,075	1,990,304[5]	2,045,000	3,980
Potential Additional Development						
Existing Zoning	4,329	15,671	3,766	1,159,654	16,475,700	18,695
Scenario 1 (Environmental Plan)	2,166	7,530	1,771	557,220	10,289,600	10,678
Scenario 2 (Economic Growth Plan)	3,851	13,680	3,256	1,012,320	18,794,400	20,013
Scenario 3 (Composite Plan)	2,507	8,759	2,066	648,166	13,738,600	14,341

(1) Based on an average of four bedroom single-family homes with 3.62 persons per household and two bedroom multifamily units with 1.69 persons per household. (Based on DHCD estimates.)
(2) Based on an average of four bedroom single-family homes with 0.87 school children per household and two bedroom multifamily units with 0.17 school children per household. (Based on DHCD estimates.)
(3) Estimates water use of 74 gallons per day per person.
(4) Estimates one employee per 450 square feet for office and retail space, and one employee per 1,000 square feet for industrial space.
(5) Estimate based on current population and historic water use trends. Record of actual water use in 1998 not available.

The above table shows the potential impacts of the three scenarios above the current levels of population, households, schoolchildren, etc. Thus, for example, the total number of dwelling units under full buildout for Scenario 1 would be 12,639, representing an increase of 21% over the existing level of development. Scenario 1, Environmental Plan, results in the smallest increase in the number of dwelling units, school children, and economic growth. Scenario 2, Economic Growth Plan, maximizes growth, while Scenario 3, Composite Plan falls in between. All three plans allow significantly less residential growth than the existing zoning, but they vary in relation to existing zoning for commercial and industrial growth.

Appendix 1-3
Wayland Proposed Bylaw To Regulate Residential Gross Floor Area

Proposed: That the Zoning By-Laws of the Code of the Township of Wayland be amended in order to control the density of population and regulate the gross floor area of new single family dwellings by adding to Article 1, General Provisions, Section 198-104.2, Definitions, the following:

RESIDENTIAL GROSS FLOOR AREA ("RGFA") - The sum of the horizontal area(s) of the above-grade floors in the residential building(s) on a lot, excluding unfinished attics but including attached or detached garages. The RGFA shall be measured from the exterior face of the exterior walls.

and

amending Article 10, Area, Yard and Bulk Regulations Section 198-1004.1.1 by deleting "Residence Districts: 20%" and inserting:

Residence Districts: for any new single family residence constructed pursuant to a building permit issued on or after June 1, 1998, the greater of 3,500 square feet of Residential Gross Floor Area ("RGFA") or 10% of the lot up to a maximum of 6,000 square feet of RGFA. Any single family residence constructed in excess of 6,000 square feet of RGFA shall require site plan approval by the Planning Board in accordance with Section 198-1202.

FINANCE COMMITTEE COMMENTS.- This article proposes to limit the gross floor area of a structure on a residential lot to 3,500 square feet of Residential Gross Floor Area (RGFA) or 10% of the lot up to a maximum of 6,000 square feet of RGFA. This article only applies to new single family residences.

The existing requirement states that the percentage of a lot that can be covered by any building shall not exceed 20% in all residential districts. This has been interpreted to include pavement. The proposed article would not control lot coverage including pavement.

ARGUMENTS IN FAVOR (FINANCE COMMITTEE): The proposed limits on residential structures' RGFA will help the Town keep its semi-rural character by trying to prohibit dense neighborhoods.

Section 2:
SOCIO-ECONOMIC DEVELOPMENT

Section 2: SOCIO-ECONOMIC DEVELOPMENT

This section provides a review of recent social and economic trends in Dracut and the surrounding area and goals and recommendations for future economic growth. A social and economic profile of the town is provided, as well as local and market area characteristics that may impact the direction of future development. The 1996 Economic Development Strategy report provided a comprehensive analysis of existing economic conditions in Dracut, identified the town's economic development goals, and outlined a set of strategies and recommendations for implementation. The findings of the Economic Development Strategy Report form the basis of the present analysis.

Although the focus is on Dracut, data on adjacent communities and regional groups is included for comparative purposes, and to provide a fuller sense of the integrated economic base. Dracut is part of the Lowell PMSA and the Northern Middlesex Council of Governments (NMCOG), which includes Billerica, Chelmsford, Dunstable, Lowell, Pepperell, Tewksbury, Tyngsborough, and Westford, in addition to Dracut. Figure 2-1 on the following page shows the regional context of Dracut, highlighting the NMCOG region.

Historical Context
The Town of Dracut once took part in the early industrial development and trade along the Merrimack River, and served with Lowell as a center of the region's economy. After the mid 1800's Dracut lost much of its manufacturing base, and some of the neighborhoods along the Merrimack River that were most closely tied to the mills in Lowell were eventually annexed by Lowell. Throughout this time agriculture remained an important economic activity in the town. At the beginning of the twentieth century the town's economy was revived for several decades as Dracut became a popular resort destination around Long Pond. Later in the twentieth century highway improvements in the region served to disperse the region's workforce, and reinforced the development of Dracut as primarily a bedroom community to employment centers including Lowell, Nashua, New Hampshire, and towns along the interstate routes north of Boston. Dracut continues to have a modest economic base with increasing industrial activities and small business development in East Dracut industrial parks and numerous service type businesses throughout the town.

2.1 POPULATION

Size and Growth
The population of Dracut has grown at a steady rate in the past half century, almost doubling between 1960 and 1990. The rate of population growth has significantly declined over the past decades, and is expected to continue to decline. NMCOG projections were adjusted (after discussions with NMCOG) to account for actual rates of growth that have taken place since the projections were made. According to these estimates the population will have grown at a rate of about 341 persons per year between 1980 and 2000, while it is expected to grow by about 110 persons per year over the following twenty year period.

Table 2-1
Population And Growth Rates Since 1960 And Projections To 2020

	Dracut	Massachusetts	Middlesex County
1960	13,674	5,148,578	1,238,742
1970	18,214	5,689,170	1,397,268
1980	21,249	5,737,037	1,367,034
% Change (1960 - 1980)	**55.3**	**11.4**	**10.4**
1990	25,594	6,016,425	1,389,462
%Change (1980 - 1990)	**20.4**	**4.9**	**1.2**
1998	26,896		
2000	28,063	6,388,885	1,459,675
% Change (1990 - 2000)	**9.6**	**6.2**	**5.1**
2010	30,407	6,720,604	1,503,594
2020	32,750	6,931,000*	1,205,752
% Change (2000 - 2020)	**7.2**	**8.5**	**5.7**

Source: U.S. Census, MISER, NMCOG (adjusted), Town Census
* 2020 population projection for Massachusetts from U.S. Bureau of Economic Analysis

Households
In 1998 there were 10,473 households in Dracut. The number of households grew 12% between 1990 and 1998. Household size and the forecasted rate of household growth is discussed in the Housing Section.

Social Characteristics
The population characteristics show a fairly even age distribution. See Table 3-3 in the Housing Section for age distribution and projections. In 1990, just over 25% of the population was under 18 years old, while approximately 10% were age 65 and over. Another 18% were in the 45-64 age group that is approaching retirement.

The ethnicity of Dracut residents is predominantly White, with a small number of Blacks, Hispanics, and Asians.

Table 2-2
Racial And Ethnic Characteristics

	1990	
	Persons	%
White	24,872	97.2
Black	135	0.5
American Indian, Eskimo, Aleut	26	0.1
Asian or Pacific Islander	308	1.2
Hispanic Origin	241	0.9
Other	12	0.0

Source: 1990 U.S. Census

The educational attainment of residents in Dracut is lower than the state average. Approximately 15% of the population in 1990 had attended 4 or more years of college or university, while approximately 78% had graduated from high school.

Table 2-3
Educational Attainment (18 years & older)

	% Completed High School	% Completed 4+ Years College
Dracut	78.1%	15.1%
Middlesex County	84.3%	35.4%
Massachusetts	80.0%	27.2%

Source: 1990 U.S. Census

2.2 ECONOMIC CHARACTERISTICS

Labor Force and Unemployment

In 1990 the annual average of persons in the civilian labor force was 14,815, representing a participation rate of approximately 74% of the population 16 years old and older. In 1997 there was an average of 16,248 people in the labor force. Of these, 640 were unemployed, resulting in an unemployment rate of 3.9%. The unemployment rate has been in steady decline since its peak in 1992, following trends across the region and state. Over the last decade, unemployment rates in Dracut have been consistently close to the state average, but lower than the rates in Northern Middlesex County as a whole. The average unemployment rate for Dracut in 1998 as of September was 3.2% (not seasonally adjusted).

Table 2-4
Average Annual Labor Force And Unemployment, 1987 - 1997

	Dracut		Lowell PMSA		State	
	Labor Force	Unemployment Rate	Labor Force	Unemployment Rate	Labor Force	Unemployment Rate
1987	13,818	3.2	143,737	3.3	3,086,092	3.2
1988	15,769	3.3	148,307	3.3	3,154,492	3.3
1989	15,877	4.4	149,338	4.4	3,179,750	4.0
1990	15,357	7.1	153,661	6.6	3,242,000	6.2
1991	15,268	10.5	150,721	9.9	3,161,800	9.1
1992	15,582	10.8	150,899	9.9	3,162,000	8.5
1993	15,575	9.1	149,310	8.0	3,164,100	6.9
1994	15,564	7.4	147,805	6.7	3,167,100	6.0
1995	15,560	6.0	148,129	5.5	3,167,500	5.4
1996	15,710	4.4	149,847	4.1	3,189,100	4.5
1997	16,248	3.9	156,757	3.9	3,260,200	4.0

Source: Massachusetts Division of Employment and Training

Occupation of Residents

In 1995, approximately 62% of Dracut's labor force was employed in managerial, professional, technical, or sales occupations. Service and finance/investment/real estate fields together employed about 36% of Dracut's labor force, while manufacturing employed about 26% and about 21% were employed in wholesale and retail trade. These figures reflect a decline in the number of persons employed in manufacturing since 1990, and a substantial increase in persons working in services industries. The Economic Development Strategy Report highlighted the fact that

> "a high percentage of Dracut residents are employed in those industries and occupations that have been most vulnerable to economic restructuring and dislocation through the last recession and recovery...A significant portion of these workers, particularly those lacking college educations, may have difficulty transferring into other industries and occupation that have experienced stable or increasing employment."

Table 2-5
Occupational Groups of Town Residents

	1990	1995 est.	1995 %
Managerial/Professional/ Tech/Sales/Admin	8,313	9,182	62.4
Service	1,732	1,962	13.3
Farm/Forestry/Fishing	106	109	0.7
Prod/Craft/Repair	1,886	1,903	12.9
Oper/Fabr/Laborer	1,552	1,550	10.6
Total	13,589	14,705	

Source: U.S. Census, Urban Decision Systems, Inc.

Table 2-6
Employment By Industry of Town Residents

	1990		1995 est.	
Agriculture & Mining	148	1.1%	141	1.0
Construction	857	6.3	920	6.3
Manufacturing	4,013	29.5	3870	26.3
Transportation, Communications & Utilities	676	5.0	724	4.9
Wholesale & Retail Trade	2,887	21.2	3,062	20.8
Finance, Insurance & Real Estate	509	3.7	636	4.3
Services	3,794	27.9	4612	31.4
Government	705	5.2%	741	5.0
Total Residents Employed	13,589		14,706	

Source: U.S. Census, Urban Decision Systems, Inc.

Places of Work

People who are employed in Dracut mainly reside in Dracut, Lowell or the neighboring towns. About 13% of the Dracut workforce are employed in the town. The ratio of jobs to workforce is declining; in 1996 there were about 15,710 persons in the workforce and only 3,980 jobs. The largest places of employment are Lowell and Dracut, and other towns in the northern Route 495 region.

Table 2-7
Top Origins/Destinations of Persons Traveling To or From Dracut for Work in 1990

Town of Residence of Dracut Employees	# of Employees	%	Workplace of Dracut Residents	# of Residents	%
Dracut	1,829	38.3	Lowell	3,304	24.3
Lowell	1,214	25.4	Dracut	1,829	13.5
Pelham, NH	179	3.7	Tewksbury	927	6.8
Methuen	130	2.7	Billerica	695	5.1
Tyngsborough	126	2.6	Chelmsford	645	4.7
Hudson, NH	108	2.3	Bedford	605	4.5
Chelmsford	103	2.2	Andover	508	3.7
Tewksbury	72	1.5	Lawrence	369	2.7
Andover	71	1.5	Burlington	354	2.6
Nashua, NH	69	1.4	Wilmington	337	2.5
Other cities and towns	875	18.3	Other cities and towns	4,016	29.6
Total	4,776			13,589	

Source: 1990 U.S. Census

Approximately 3% of the labor force in Dracut worked at home or walked or biked to work in 1990. Of the remaining work force, approximately 54% traveled 30 minutes or less to work, while 4% traveled longer than one hour by vehicle.

Income Distribution

According to the U.S. Census, the median household income in Dracut in 1989 was $45,165. (More recent income data for the town is not available.) The number of persons in 1989 whose household income was below the poverty level was 830, or approximately 3.3% of the population. The percentage of persons below the poverty level in Dracut was higher than Middlesex County (2.8%) but considerably lower than Massachusetts (8.9%). The poverty rate in 1997 is about the same.

Table 2-8
Income Distribution - 1989

	Households	%
Less than $10,000	661	7.3
$10,000 - $24,999	1,397	15.5
$25,000 - $49,999	3,170	35.2
$50,000 - $99,999	3,399	37.8
$100,000 or more	392	4.4

Source: U.S. Census

2.3 TAX BASE

The tax base in Dracut is primarily residential, with homeowners providing approximately 90% of the tax revenues. Exempt properties constitute 5% of total property value in the town. Industrial and commercial properties combined make up approximately 7.5% of the taxable property in Dracut. Chapter 61, 61A, and 61B tax provisions permit private agricultural, forestry, and recreation lands to be taxed at a lower rate as long as they remain undeveloped. Such lands constitute less than one percent of the total property value in the town.

Table 2-9
Total Property Values in Dracut by Land Use Category, January 1, 1998

	Total Property Value	% (Excluding Exempt)
Residential	$1,044,822,200	90.4
Commercial	65,106,400	5.6
Industrial	21,880,700	1.9
Personal Property	23,918,668	2.1
Chapter 61, 61A, 61B (Agriculture, Forestry, Recreation)	593,500	0.1
Total non-exempt	1,156,321,468	
Exempt (4.6% of Total)	55,866,700	
Total Assessment	$1,212,188,168	

Source: Town of Dracut Assessors Department

Dracut has a smaller proportion of commercial and industrial tax base than its immediate neighbors. In comparison, Lowell derives about 31% of its tax revenues from commercial and industrial properties, while Methuen derives about 18%, and Tyngsboro derives about 13%. These towns, however, are somewhat atypical because of their locations with respect to regional transportation networks, and because of their greater level of urbanization.

2.4 ECONOMIC BASE

The economy in much of eastern Massachusetts has fully recovered from the recession in the early 1990s. With a relatively small proportion of the town's workforce employed in Dracut, the

town's economy is dependent upon the surrounding region for employment. Close to 80% of the town's workforce is employed in the region north of Boston. Employment in the Lowell PMSA declined after a peak in 1988, but has risen modestly in recent years. The structure of the economy has shifted in recent years, as more employment growth has taken place in the high tech, service and trade industries, and less in manufacturing industries. Projections for the near future show considerable job growth in the region, especially in high tech and computer related industries.

In 1996 a total of 458 businesses in Dracut employed approximately 3,980 persons. This does not include persons who were self-employed or worked informally. Data for 1997 will be available before completion of the final report. The average annual wage for employees in Dracut in 1996 was $24,885. The highest number of jobs were in wholesale and retail trade (29%), and in government (21%). A sizable number of jobs, 15%, were in services, and 14% in construction. The number of jobs in trade-related industries has declined in recent years, while jobs in construction, manufacturing, and government have moderately increased.

Table 2-10
Employment by Industry in Dracut

	Dracut					Northern Middlesex
	1988	1990	1992	1994	1996	1996
Average Annual Wage	$17,751	$18,347	$21,369	$22,973	$24,885	$35,827
Number of Establishments	497	478	438	440	458	5,924
Total Employment	4,299	4,113	3,796	3,709	3,980	104,070
Government	985	901	713	770	832	12,115
Agriculture & Mining	34	30	32	34	39	650
Contracting & Construction	802	449	492	491	563	4,586
Manufacturing	389	337	325	311	367	26,534
Transport Comm. Utilities	68	280	247	256	318	6,246
Wholesale & Retail Trade	1,323	1,451	1,397	1,149	1,143	22,541
Finance Insurance Real Estate	99	115	128	134	138	3,627
Services	591	587	604	564	580	27,771

Source: Massachusetts Division of Employment and Training (covered employees only)

Figure 2-2
Distribution of Employment in Dracut (1996)

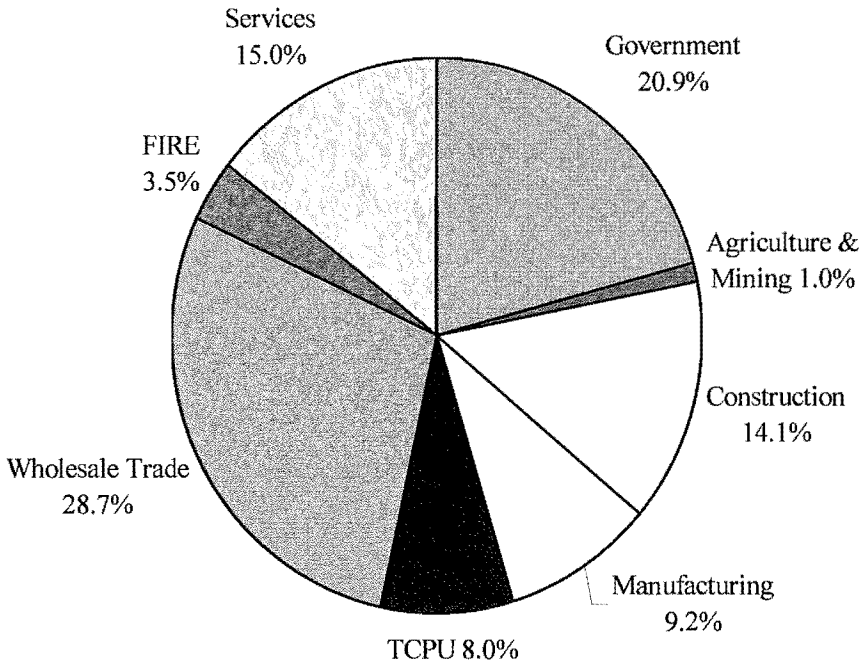


Table 2-11
Average Annual Wages by Industry in Dracut

	1996
Government	$26,482
Agriculture, Forestry & Fishing	16,184
Contracting & Construction	34,145
Manufacturing	36,529
Transp., Comm., & Utilities	34,951
Wholesale Trade	45,547
Retail Trade	10,981
Fin., Insurance, & Real Estate	20,203
Services	19,628
Average	$24,885

Source: Massachusetts Division of Employment and Training

Employers

The number of employers in Dracut has fluctuated in the past decade between 440 and 497 establishments. According to information supplied by individual employers in 1997, there were only a few establishments employing more than 100 persons. The following table shows the largest employers in Dracut in 1997.

Table 2-12
Ten Largest Employers in Dracut, 1997

Name	Product/Function	Approximate No. of Employees
Shop & Save	Supermarket	175
Bell Atlantic	Telecommunications	170
George Brox, Inc.	Contracting/Construction	165
Mill House Restaurant	Restaurant	75
APA Trucking	Transportation/Shipping	75
Toupin Rigging	Contractor	68
Capital Distributing Co. Inc.	Retail Sales	65
Beauty Box	Manufacturing	61
Poland Springs	Warehouse	60
A.J. Gagnon & Sons, Inc.	Contracting/Construction	50

Source: Individual employers listed

Retail Trade

The 1992 U.S. Census of Retail Trade reported that there were 109 retail establishments with total annual sales of $61,701,000. The largest categories were eating and drinking establishments, with 48 stores totaling $20,137,000 in annual sales. Food stores was the next largest category, followed by gasoline and service stations and drug and proprietary stores. Annual sales are not reported by the census for other categories of retail establishments in Dracut to avoid disclosing the operations of individual companies or businesses. A total of 97 Retail establishments in 1996 employed 972 people at a relatively low average wage of $10,981. A total of 18 wholesale establishments employed 171 persons at an average wage of $45,547.

Table 2-13
Retail Sales by Retail Group (1992)

	Establishments	Sales ($)
Building. materials, garden supplies	2	*
General merchandise	0	0
Food Stores	15	15,633,000
Automotive stores	3	*
Gasoline service stations	6	6,805,000
Apparel, accessories stores	5	*
Furniture, home furnishings	4	*
Eating & drinking places	48	20,137,000
Drug & proprietary stores	4	6,691,000
Miscellaneous retail stores	22	*

Source: U.S. Retail Census
* Sales withheld where it would disclose the operations of individual companies or businesses.

Manufacturing
In 1996 there were 21 manufacturing enterprises in Dracut that employed a total of 367 persons. The average wage in manufacturing was $36,529. The number of persons employed in manufacturing declined since the late 1980's, and has not fully recovered to previous levels.

Market Area Characteristics
Dracut is a suburban community in northern Middlesex County within the Lowell metropolitan area. Dracut has fair access to regional transportation corridors via Route 113, although the lack of direct access to an interstate highway is identified as one of the factors constraining economic growth in the town.

The Northern Middlesex County region has experienced tremendous growth in recent years. Although over-speculation resulted in high commercial vacancies in the early 1990's, the market has absorbed much of this excess space by now, and the region is likely to see more development take place. A dearth of office space in eastern Massachusetts has lead to a recent boom in construction that is reaching into suburban areas. Dracut has the potential for attracting some of this regional growth, although the lack of sewers in the industrial areas and lack of direct interstate access make it a less competitive location for some industries.

Commercial Development in Dracut
Dracut presently has a limited economic base, but has the potential for significant growth. According to the Economic Development Strategy Report, vacancy rates for commercial and industrial buildings in Dracut have been quite low in recent years, with the most vacancy in office buildings. The two historic mill complexes in Collinsville and Navy Yard together contain about 320,000 square feet of industrial space, and are generally underutilized in their upper floors. The town has over four hundred acres of vacant industrial land, including close to seventy acres in established industrial parks. This does not include available expansion areas on existing developed industrial sites. Vacant commercial land is less available, as it is divided into smaller parcels and much of it is covered by wetlands.

Areas zoned for business use are located mainly along the lengths of major transportation routes, including Routes 113, 110 and 38, Lakeview Avenue and around Long Pond. There are four business districts on the zoning map, which are distinguished by different dimensional requirements and permitted uses. Large tracts of land zoned for industrial use are located in the eastern half of the town along Routes 113 and 110. In the I-1 district, light manufacturing is allowed by right, while certain business uses are allowed by special permit. Residential uses and heavy manufacturing are prohibited. A second industrial district is described but not located on the zoning map.

The one regulatory disadvantage to commercial development that was identified in the Economic Development Strategy Report is the fact that the old mill structures are combined in the same zoning district with rest of the town's developed and undeveloped industrial land. The dimensional and land use controls for this district present a potential barrier for the reuse of these structures, as they are not flexible enough to accommodate development in their congested settings. Also the effort to accommodate potential users of mill space within the same zoning district may lower the value of potential uses within industrial parks.

Another source of potential tax revenue to the Town is the power plant that is proposed to be located on a portion of the Brox property off of Methuen Street in the eastern part of Dracut. This activity will have substantial fiscal benefits for the Town, with relatively little impact in terms of traffic or new transmission lines since existing transmission lines are already located nearby.

Town Center

While not considered primarily an economic activity, identification and strengthening of a recognizable town center should have economic benefits as well as the benefits of creating community pride, improving governmental efficiency, and enhancing the attractiveness and image of the town. The economic benefits would be in the grouping of a substantial employee group (town employees and other town center employees) in a location that could benefit retail and service businesses. While it is recognized that large scale retail uses and chain stores prefer mall locations, other local entrepreneurs and businesspersons can benefit from lower rents and community loyalty at other locations, such as a town center.

Respondents to the Community Survey (59%) indicated that Dracut should better define its Town Center. The preferred location (83%) was on Arlington Street near the current library and Town offices. The accompanying Figure 2-3 diagrams the recommended town center location along with potential locations for civic center activities and business and cultural center activities. Further detailed design studies will be required in order to provide a functional and esthetic plan for a more defined town center.

2.5 ECONOMIC DEVELOPMENT GOALS

The following goals have evolved from the community survey, neighborhood meetings, public forums and other community input:

1. Attract environmentally acceptable businesses and industries to the town which will help to maintain the quality of life through providing real estate tax income, employment, entrepreneurial opportunities and convenient goods and services.

2. Enhance the unique role, character, and scale of commercial areas within the town including retail, service, and industrial uses.

3. Encourage the viable reuse of the older mill properties in the Navy Yard and Collinsville neighborhoods.

4. Coordinate vehicular traffic, pedestrian traffic and parking in commercial areas so that they function in an optimal manner.

5. Maintain high standards of design and maintenance in existing and new commercial developments.

6. Maintain and increase a variety of job opportunities within the town to match the diverse skill levels and needs of the resident labor force, including low and moderate income workers.

7. Encourage Dracut employers to form a local business organization in order to build a stronger working partnership with Town government on economic development issues.

8. Pursue resources to enable local firms and residents to develop, diversify and enhance job skills.

9. Support regional efforts to develop cooperative marketing, training, financing and other business development programs that might be accessed by Dracut businesses and/or augment local economic development initiatives.

10. Build long term organizational capacity to sustain an economic development effort.

11. Plan for long range infrastructure improvements and support other local and regional initiatives that help make local employers and workers more competitive.

12. Streamline procedures and reduce the potential for future conflict in the local regulatory and permitting process.

2.6 ECONOMIC DEVELOPMENT RECOMMENDATIONS

Dracut can expect to experience modest economic growth in the coming decades. This will likely be the result of market forces, although the Town can take measures to encourage the kind of commercial and industrial development it wishes to have and to become more attractive to prospective businesses. The 1996 Economic Development Strategy Report by RKG Associates contains valuable recommendations for promoting economic development, some of which are mentioned below. See the Economic Development Strategy Report for additional recommendations.

Location of Economic Activities

As recommended under the Guide Plan for Future Land Use, the Town should avoid overzoning for commercial and industrial development but should instead direct these uses into the selected areas. Allowing commercial and industrial development only in areas that are appropriate will encourage higher value uses to occupy those sites and will protect the interests of existing businesses. The Guide Plan recommends concentrating large-scale commercial development

mostly along the northern part of Route 38 and limiting all other commercial areas to smaller-scale uses. The areas that are currently zoned for industrial use are for the most part well placed, but should be reduced in certain locations as shown in the Guide Plan. The Town should consider extending sewer service into the industrial areas.

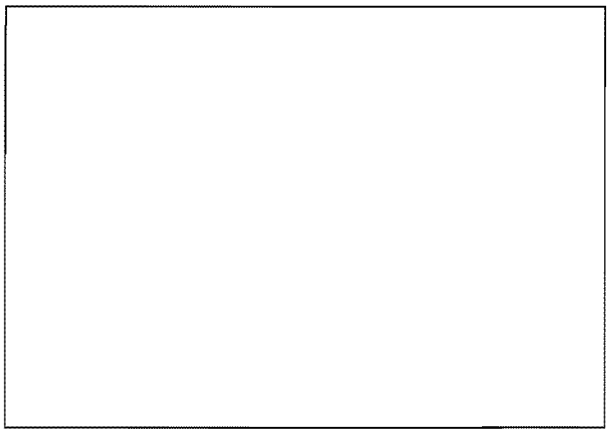
Town Center
The economic base subsection discusses strengthening the Town Center near the intersection of Routes 38 and 113 with a concentration of municipal uses. Moderate-scale business and cultural uses are also an important component of the Town Center to support the Town employees and visitors, although they may not form the defining character of the Town Center. Business, cultural and governmental uses can all benefit from a cohesive Town Center design including landscaping, parking, traffic circulation, and other amenities.

Types of Uses
Dracut should seek to attract a broad range of commercial and industrial uses that provide employment opportunities and are compatible with the residential character of surrounding neighborhoods. The Guide Plan provides ample space for small scale retail uses that can provide specialty shopping and neighborhood convenience, rather than large scale uses, which might face disadvantages competing with nearby New Hampshire retailers, which do not have sales taxes.

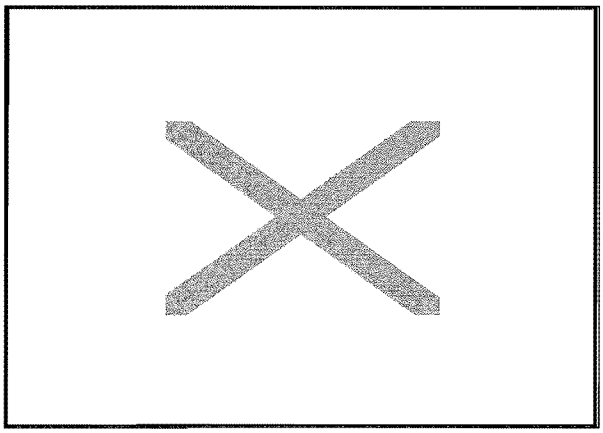
Light industrial uses appropriate for Dracut include non-polluting high tech, warehousing, light manufacturing, assembly, and research and development. Transportation and distribution related uses should be discouraged. The Economic Development Strategy Report recommends potential target industrial markets for Dracut to attract, including "1) companies with specialized facility requirements that cannot be easily accommodated by the region's inventory of existing vacant space; 2) cost sensitive users that cannot afford the higher cost of new construction in communities closer to Route 128; 3) industries with low sewage disposal requirements; and 4) companies which may place value in Dracut's existing base of agricultural and extractive resources."

Mill Structures
As explained in the Economic Development Strategy Report, the existing zoning regulations do not support the viable reuse of the historic mill structures at Collinsville and Navy Yard. The Guide Plan for Future Land Use suggests some types of uses that might be appropriate for these structures, including office use or "incubator" space for smaller industrial businesses, or mixed commercial and residential use. Section 8, Implementation, describes specific regulatory options to apply to the mill complexes.

Mill Complexes



Collinsville



Navy Yard

Organizational Capacity
Currently the office of the Town Manager is the entity that fields economic development inquiries from potential developers. An additional economic development entity might be of help to land owners, developers, and Town officials and provide information and support to marketing efforts. One option discussed in the Economic Development Strategy Report is to establish (or revive) an economic development organization in the town, such as an Industrial Commission/Economic Partnership. Another option is to expand the capacity of the Town Manager's office to focus on economic development issues with an Assistant Town Manager, Town Planner, or other support staff.

Economic Development Strategy Report Recommendations
The following are business advocacy functions that the Economic Development Strategy Report recommends to be carried out by the Town's economic development organization:

- Serve as the Town's contact with State, neighboring local and possible future regional economic development organizations/initiatives.
- Provide policy recommendations to the Board of Selectmen.
- Pursue outside funding support for local economic development initiatives.
- Advocate the formation of a local Chamber of Commerce, Board of Trade or similar private business organization in Dracut.

The Economic Development Strategy Report also provides the following recommendations for marketing and development activities to be carried out by the economic development organization:

- Maintain an updated contact list of major industrial/commercial property owners in Dracut, particularly those which are known to be actively marketing land or buildings.
- Encourage all interested property owners to provide the Town with updated, active property listing information, including names of current marketing representatives.
- Establish early working relationships with other significant land owners who are not

actively marketing sites at present, but may represent longer range opportunities.

- Encourage property owners to financially participate in a joint venture to produce professionally prepared marketing/community information materials.
- Target marketing initiatives to the "desired" industry groups described above.
- Gain control of an industrial site in order to augment marketing efforts.
- Form a local rapid response team.
- Create the capacity to offer financing assistance to local businesses.
- Establish contact with the ownership of the Towns two mill complexes.

Town Center

As discussed above, it is recommended that the town seek to develop a more recommended Town Center in the vicinity of the intersection of Routes 113 and 38.

2.7 RESOURCES

Resources available to assist in the provision of various types of housing are contained in Section 8, Implementation.

Section 3:
HOUSING

Section 3: HOUSING

Dracut's residential development patterns reflect the phases of the town's history, starting as an agricultural community, then a mill town, a summer resort town, and now a bedroom community. There is considerable room for residential growth in the town, although the rate of population growth in the northern Middlesex region is expected to slow in coming decades. The purpose of the following analysis is to identify Dracut's housing issues based on population and neighborhood characteristics.

There are three important aspects related to housing: the housing structures themselves, the population that inhabits the housing structures, and the environments in which they are located. The first component of this analysis examines the existing housing structures in terms of their age, condition, cost, availability, and rate of growth. The next two components consider the demographic trends affecting housing needs, as well as the specific needs of different population groups. The final component provides a plan to address the needs of Dracut residents and ensure the quality of residential development and the neighborhood environments.

3.1 OVERVIEW OF EXISTING HOUSING CONDITIONS

Neighborhoods

Dracut is historically characterized by its residential neighborhoods. Figure 3-1 shows the location of the major neighborhoods. Dracut is historically characterized by its residential neighborhoods. Collinsville is located in the northwest corner of our town, and includes access to two ponds, a past summer resort area, and the Collinsville Mill. Lakeview Avenue and Mammoth Road are the main roads. To the southwest is the Navy Yard Neighborhood. It contains an urbanized area which grew up around the Navy Yard Mill at the intersections of Lakeview Avenue and Pleasant Street (Route 113). Residents of nearby Lowell also frequent this area. To the east is Dracut Center. The Moses Greeley Parker Library Dracut Town offices, The Yellow Meetinghouse or Christ Church United of Dracut, and Monahan Field are at the intersection of Pleasant Street (Route 113) and Bridge Street (Route 38). To the southeast is the neighborhood of Kenwood. It is bordered to the south by the Merrimack River along which Merrimack Avenue (Route 110) runs. The northeast neighborhood is East Dracut. It is the least developed residentially but the most developed industrially. Broadway Road (Route 113) is the main road and accesses neighboring Methuen, Massachusetts.

The southern and western portions are the most heavily developed residentially. This area includes neighborhoods of Collinsville and Navy Yard that were once the bedroom communities of the mills built along Beaverbrook and later the mills in Lowell. Beginning in the early twentieth century a popular summer resort community developed around Mascuppic Lake and Long Pond, which has now become a densely populated permanent community. The eastern half of the town retains much of the town's agricultural lands and open space. Most of the developable land in the town is located in the east, and that is where future residential growth is expected to take place.

Existing Housing

As of January 1998 there were approximately 10,473 housing units in Dracut, an increase of 1,170 units since 1990.

The age of the housing stock in Dracut is shown in Table 3-1. Almost 69% of Dracut's housing was constructed after 1959. The peak decade for home construction was the 1980s, while the pace of construction has slowed slightly through the 1990s.

Table 3-1
Age of Housing Stock, Dracut, MA

Year Built	Total Units	Percent
1939 or Earlier	1,350	12.9
1940 to 1949	605	5.8
1950 to 1959	1,306	12.5
1960 to 1969	1,569	15.0
1970 to 1979	1,941	18.5
1980 to 1989	2,483	23.7
1990 to 1998	1,219	11.6
TOTAL	10,473 units	

Source: U.S. Census, Town of Dracut Building Permit data

The type of housing structures in Dracut in 1998 is displayed in Table 3-2. Over 71% of the housing in Dracut is single-family, while buildings with five or more units comprised approximately 20% of housing in 1998. In 1990 there were 1,678 condominiums in the town, or about 18% of the housing units. The zoning bylaw permits multifamily structures in the R3 district by special permit. Two-family homes are allowed in the R3 and B-1 districts with as special permit.

Table 3-2
Units By Type of Housing Structure, 1990 and 1998

Units in Structure	April, 1990	Percent	1998	Percent
Single-family	6,293	67.8%	7,463	71.3%
2-4	784	8.5	788	7.5
5 or more	2,088	22.5	2,101	20.1
other	114	1.2	114	1.1
Total	9,279		10,473	

Source: U.S. Census, Town of Dracut Building Permit Data (as of January 1, 1997)

About 76% of the occupied housing units in Dracut in 1990 had two to three bedrooms. Approximately 17% percent had four or more bedrooms. The median number of rooms in all housing units in Dracut in 1990 was 5.6.

Existing zoning regulations require a minimum residential lot size of 40,000 square feet per dwelling unit in the R-1 and R-3 districts, 80,000 square feet in the R-2 district, and 22,000 square feet in the B-1 district. Some older homes in neighborhoods that predate the zoning bylaw have smaller lot sizes.

The rate of occupancy by homeowners is lower in Dracut than in the region as a whole. Approximately 76% of housing units in Dracut in 1990 were owner-occupied. Over 2,100 units were renter-occupied.

Availability

Vacancy rates are an indicator of the availability of housing units. A vacancy rate of 5% is considered to be ideal because it allows occupants to move freely in the marketplace. A vacancy rate of under 5% indicates that there is demand for additional housing.

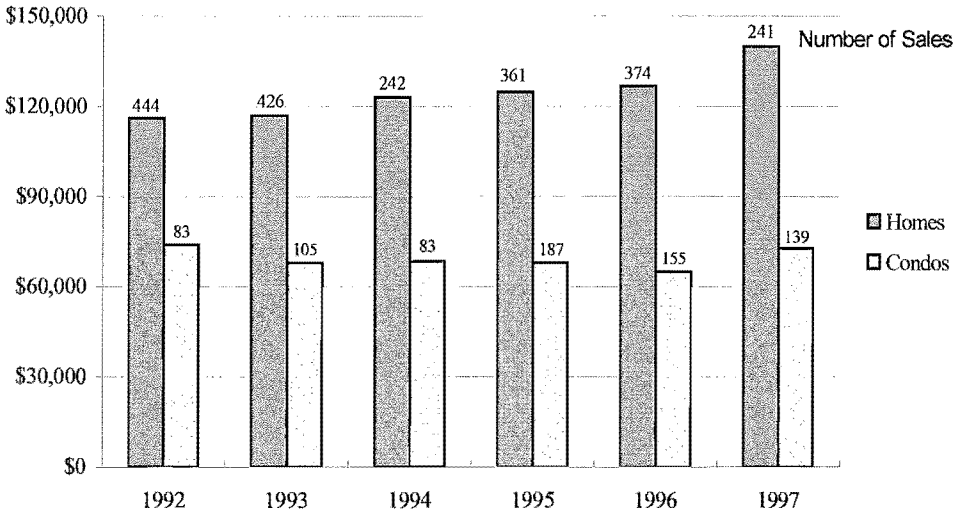
Vacancy rates for single-family homes have been consistently low in Dracut. In 1990 the vacancy rate was 0.9% for all owner occupancy units. According to real estate professionals interviewed, there are typically 50-60 homes on the market at any given time, although there have been significantly fewer homes for sale in 1998 than in previous years at the same time of year. The entire region is currently experiencing a shortage of supply of homes for sale relative to demand.

The vacancy rate for rental units in 1990 was 5.9%. It is not known how many rental units are presently available, but the vacancy rate is estimated at about 5%.

Housing Costs and Affordability

There were 380 residential units sold in 1997, of which 241 were single-family homes and 139 were condominiums. The median sales price for a single-family home in 1997 was about $140,000, while the median price for condominiums was $72,800. The median price of homes has risen throughout the 1990s with the highest jump between 1996 and 1997. The strong seller's market may be responsible for some of the recent rise in prices. In comparison, the median sales price for single-family homes in Lowell in 1996 was $89,000, while the median sales price for homes in Tyngsboro was $160,000.

Figure 3-2
Median Residential Sales Prices Dracut 1992-1997



Source: Banker & Tradesman

The cost of renter-occupied housing in Dracut has also increased. Although the rate of the increase was somewhat less than that for owner-occupied homes between 1980 and 1990, current estimates show higher rates of rent increase since 1990. In 1990 median gross rent was $615 per month, an increase of 145% over 1980. The current market rate in the region for renting a 2 bedroom apartment is about $700 per month, while a 3-4 bedroom house is about $950 to $1,500. Most units are rented directly by the owners.

Affordability of housing is measured not only in terms of the price of housing, but also in terms of the household living in it. A generally accepted standard used to define affordability of housing is that it should cost no more than 30% of household income. A guideline used by banks when evaluating home mortgage applications is that monthly payments do not exceed 30%-33% of household income.

Homeowners (with mortgages) in Dracut in 1990 spent an average of 23% of their income on housing costs, while renters also spent about the same proportion of their incomes on housing. Housing costs in eastern Massachusetts have risen faster than incomes in the 1990s, widening the gap between housing costs and household income. Although Dracut has experienced a more moderate increase in housing costs than other parts of the region, the present shortage of available housing is causing the costs to rise more quickly than they have in the past.

It should be noted that the term "affordable housing" is relative, since it depends on the income of the household. Affordable housing is not the same thing as subsidized housing for persons of low and/or moderate income, although subsidized housing is one type of affordable housing.

Low and Moderate Income Housing

Existing Units. There are a total of 310 publicly assisted housing units in Dracut, including 171 units for elderly/disabled persons, 36 units for families, 2 units for persons with special needs, and 101 Federal and State rental vouchers which may be used by elderly persons or families.

These provide housing for persons of low and moderate income. Low income is defined by the U.S. Department of Housing and Urban Development (HUD) as income that does not exceed 50% of the median family income for the region; moderate income is defined as income that does not exceed 80% of median family income.

The Dracut Housing Authority manages elderly units in five locations throughout the town. These elderly housing facilities include 80 units at 971 Mammoth Road, 12 units at 901 Mammoth Road, 20 units at 113 Parker Ave, and 15 units at 204 Pleasant Street. These are all subsidized under Massachusetts Chapter 667, which provides housing for elderly and handicapped persons. In addition there are 44 units at 65 Phineas Street which are sponsored under a Federal subsidy for elderly housing.

The Housing Authority owns and maintains 21 family units located at Perron Lane, including two units equipped for persons with special needs, and five units at Pleasant Street, in addition to 12 scattered site units throughout the town. Family units are subsidized under Chapter 705. The special needs units are subsidized under Chapter 689, and provide services for persons with mental retardation.

The housing units owned and managed by the Dracut Housing Authority include homes of various styles. Family units include condominiums, townhouses, garden style apartments, single family homes and duplexes. The elderly sites are mainly multifamily developments.

Rental Vouchers. There are also housing rental vouchers offered under federal and state programs in the town. As of May, 1998 the Dracut Housing Authority administers six vouchers under the Massachusetts Rental Voucher Program. This program has not been funded to continue, and as families leave the program, vouchers cannot be reissued to new families. In addition there are 64 Federal Section 8 housing certificates administered by the Dracut Housing Authority and 31 Section 8 certificates administered by Community Teamwork from Lowell. Funding for the federal Section 8 housing program has remained steady up to this time.

Income Limits. Income limits vary depending upon the federal or state program which subsidizes housing.

Table 3-4
1998 Income Limits for Federal and State-Aided Programs

Family Members	Total Gross Family Income (Lowell PMSA) Federal Very Low Income	State Programs and Federal Low Income	State MRVP*
1	$20,700	$31,700	$16,100
2	$23,650	$36,250	$21,700
3	$26,600	$40,750	$27,300
4	$29,550	$45,300	$32,900
5	$31,900	$48,900	$38,500
6	$34,350	$52,550	$44,100
7	$36,700	$56,150	$49,700
8	$39,050	$59,800	$55,300

Source: Dracut Housing Authority
* Massachusetts Rental Voucher Program

3.2 DEMOGRAPHIC TRENDS AFFECTING HOUSING

There are several demographic trends that affect the quantity of demand for different types of housing.

Population growth is shown in Table 2-1 of the Socioeconomic Development Section. Table 3-3 provides a breakdown of the age structure. As discussed previously, the forecasts may overstate the total population in the future, however the relative changes between the age groups can be assumed to be accurate.

There was an increase in the number of residents in the 18 to 44 year old age range between 1980 and 1990, but a decline is expected in the coming decades. This is the age at which many people are married and are starting families, or are living in independent households. The number of persons under 20 is also expected to increase significantly, suggesting a substantial growth in the number of school-aged children.

The 45-64 year old age group is expected to increase the most in coming years. This is the age group that is approaching retirement. The number of persons over retirement age is also expected to increase significantly.

Table 3-3
Age Distribution 1980 - 2010

	1980		1990		2010		
	Persons		Persons		Persons		Percent Change (1990 – 2010)
0-4	1,396	6.6%	1,939	7.6%	2,167	6.5%	11.8%
5-17	4,986	23.5	4,493	17.6	7,067[1]	21.1	57.3
18-29	4,420	20.8	5,276	20.6	4,317[1]	12.9	-18.2
30-44	4,183	19.7	6,552	25.6	6,773	20.2	3.4
45-64	4,561	21.5	4,740	18.5	9,354	27.9	97.3
65 & over	1,703	8.0	2,594	10.1	3,822	11.4	47.3
Total	21,249		25,594		33,500		30.9%

Source: U.S. Census, NMCOG
[1] 2010 data is for ages 5-19 and 20-29.

The number of households in Dracut increased from 6,768 in 1980 to 8,992 in 1990, an increase of 32.9% in this period, compared to an overall population growth of only 20.5%. This disparity is related to the decline in the number of persons per household in Dracut from 3.1 persons in 1980 to 2.9 persons in 1990. This decline reflects a regional, indeed national trend, to smaller household size. This trend is expected to continue into the future.

According to our estimates, households are expected to increase at a rate of 123 units per year over the next decade, and to slow somewhat after that. See Table 1-5 in Section 1, Land Use for a forecast of household growth.

The proportion of family households headed by females in 1990 was 10.1%. This declined slightly from 1980. The proportion of households in Dracut that were not families rose from 16.5% in 1980 to 22.0% in 1990.

Regional Growth
The Northern Middlesex Region has experienced unprecedented residential and nonresidential growth in recent decades. Between 1985 and 1995 close to 10,000 acres of land in Northern Middlesex County were consumed by development. This growth was distributed across the region, with the greatest amount of vacant land becoming developed in the towns of Westford, Chelmsford and Pepperell. The rate of growth has accelerated through the mid-1990s.

Intense commercial growth has taken place in the region, generating a tremendous amount of employment. An expanding concentration of large employers is located in the metropolitan area north of Boston. Future employment growth in the region can be expected to attract a significant population seeking housing.

Dracut has not escaped the growth pressures. Over 700 acres of land have been developed for residential use since 1990. The greatest number of units were developed in the section of town west of Phineas Street; however the greatest amount of land was consumed by residential development in the eastern half of the town (east of Bridge Street), where the average lot sizes were larger. Recent housing development in the region has oriented more towards the upper end

of the market. The average cost of new homes built in Dracut in 1995 and 1996 was $190,000. Less development of new affordable homes has taken place.

To conclude, trends indicate a rapid increase in new households in Dracut. Households also tend to be slightly smaller than in previous years, and there is likely to be an increase in households composed of families with school-aged children. Population trends indicate a demand for additional housing units for separate households, older adults, and for the elderly. On the other hand regional growth pressures may bring more single-family residential development, attracting more young families to settle in Dracut.

3.3 HOUSING NEEDS ASSESSMENT

As the preceding discussion has shown, housing in Dracut consists of single-family and multifamily homes, distributed throughout varied neighborhoods. Demographic changes that are taking place suggest that a continuation of this diversity of housing types would benefit Dracut residents who may not be able to afford to purchase or maintain a larger home, or who might desire an alternative type of dwelling.

Housing, a basic necessity of life, has become increasingly expensive. As housing prices have risen throughout Massachusetts in recent years, more and more residents are being priced out of the housing market. Families and individuals are forced to spend an increasing share of their incomes on shelter, meaning they have less money to spend on other things.

Several groups have been more greatly affected by increasing housing costs than the population as a whole. These include young adults, the elderly, single heads of households, would-be first time homebuyers, and persons with low or moderate income. Not all of these people are eligible for, or desire, subsidized housing. They are households that have been priced out of the housing market by rapidly rising costs.

Alternatives to single-family homes include condominiums, townhouses, and multifamily structures, as well as other types of planned developments. They may be targeted toward specific populations such as elderly persons or low-moderate income families, or they may have a mixture of occupants from various income and age levels. Such housing units tend to be less expensive than single-family homes, and require much less maintenance on the part of the homeowner/ occupant.

Older Adults

One of the most rapidly growing age groups in Dracut are the persons over the age of 65 years old. Many of these people are either approaching or have reached retirement and have grown families. After retirement many people are living on fixed incomes that often do not keep pace with rapidly rising costs, and are likely to be affected by increasing housing costs. Some older individuals and couples may be living in a large house they no longer need or want, but cannot move because there is no suitable, affordable, housing available. Home and property maintenance may also become burdensome for elderly persons, adding to the cost of living in single-family homes.

Young Adults

Young adults, including singles and young families, frequently need to rent housing until they become more established and can save enough for a down payment on a home. Some young

adults may value the mobility that living in a rental unit offers, but want to stay in their hometown. Many of Dracut's young adults cannot afford rents charged in private apartments or the down payment and carrying costs of a single-family home. Frequently these first time homebuyers turn to the condominium market when they are ready to purchase.

First-Time Homebuyers

Nationally, the rate of homeownership among young adults has declined substantially since 1980, after 35 years of increasing rates. The National Association of Realtors (NAR) ascribes this trend to both the increase in purchase prices for homes, and also to the increase in rents which makes it difficult to save the money necessary for a down payment.

The NAR calculates a First-Time Homebuyer Affordability Index, which indicates the ratio between would-be homebuyer income and the income needed to purchase a home. The First-Time Homebuyers Affordability Index for the fourth quarter of 1997 was 80.7, which means that the typical would-be first-time homebuyer has less than 80.7 percent of the income needed to quality for a mortgage on a "starter home." This index is computed using national averages, with the typical "starter home" price assumed to be $117,600 for that year. Under current affordability conditions, a family earning $40,000 would have sufficient income to qualify for a $116,800 loan on a $146,000 home.

While incomes in Dracut may be higher than the national average, housing costs are also higher. Therefore it may be assumed that would-be first-time homebuyers in Dracut are experiencing the same or greater difficulty.

Low and Moderate Income Housing

One indication of the need for housing for individuals and families with low and moderate income is the length of the waiting list for available units. For elderly applicants in the third category, the wait for housing may be about 1-3 years, while families may wait as long as 3-5 years. According to State regulations, veterans are given preference for elderly housing, thus non-veterans may have a difficult time being placed in units that become available.

Housing subsidy needs may be impacted by the Immigration and Welfare Reform Act enacted in August, 1996. This landmark legislation significantly changes the type, tenure and amount of welfare assistance to the poor. Although Massachusetts has had welfare reform measures in place prior to 1996, they did not go into full effect until the passage of the Federal legislation. The combination of welfare changes and reduced funding for housing at both the state and federal level are expected to challenge the capacity of local housing authorities to meet the needs of low and moderate income residents.

State Standards. Another way of assessing demand for subsidized units is through the standards set by the state. Section 20 of Chapter 40B of state law (often referred to as Chapter 774) sets a standard that 10% of the housing stock in a community be available for people with low and moderate incomes. Currently only about 3.0% of Dracut's housing stock is available to persons of low and moderate income. This percent is similar to other suburban communities. Under the 10% standard, Dracut should have a total of approximately 1,045 units, a shortfall of approximately 735 units. The State guidelines are based on the 1990 U.S. Census count of year-round housing units.

Chapter 774 allows the State to override local zoning via the comprehensive permit procedure to provide for the construction of affordable housing units up to the 10% standard. Discretionary

state funding can also be withheld from a community if it is deemed not to be making a good faith effort to meet its obligations. The Local Initiative Program (LIP) encourages local governments to work in partnership with developers, providing an opportunity for input into the design and development of projects reserving 25% of their units for low and moderate income persons.

To date there have been two developments in Dracut which used comprehensive permits under the Homeownership Opportunity Program (HOP). These were developed between 1992 and 1995, creating approximately 45 units of affordable housing (for ownership) out of a total of about 150 units. The locations of comprehensive permit developments are shown on Figure 3-1.

Special Needs Housing

Special needs housing is housing that accommodates the elderly or persons with mental or physical handicaps. Senior housing may include assistance in home care, meals, and medical care. The provision of elderly housing would prevent or delay seniors from having to leave the town when they are not able to live in single-family homes or live independently.

The term "handicapped" includes people with a wide range of disabilities which include physical, mental, and emotional disabilities. Each of these groups have different, but special, housing needs. Persons with mental or emotional disabilities may need a living situation that includes care. Physically challenged individuals often require special construction that includes extra-wide doors, lower counters and special bathroom facilities. These special types of housing are frequently ignored by the private sector.

The housing options for persons with special needs in Dracut are limited. The Housing Authority manages housing for low-income elderly and handicapped persons, as well as two low-income family units for persons with special needs. One private development, Draco Homes, has an apartment building with 38 units for seniors. There are also some privately owned units that provide for persons with mental retardation. It is not known how many of these privately owned units exist.

Privately financed elderly and handicapped housing could yield an economic benefit to the town because they would increase tax revenues and require fewer town services than single-family development, which generally attracts families with school children. This type of development may also increase the market for local businesses.

3.4 HOUSING GOALS

The following housing goals have evolved from the community survey, neighborhood meetings, public forums and other community input:

1. Provide a wide range of housing options so as to meet the needs of a diverse population.

2. Create diversity in new residential housing units consistent with community character and needs.

3. Provide for more elderly housing and life-care facilities to meet the needs of Dracut's older population.

4. Preserve and strengthen the character of the town's residential neighborhoods and protect them from adverse influences.

5. Carefully integrate new or expanded housing into existing districts and neighborhoods so that it is not physically or environmentally disruptive to the existing style and scale.

6. Create recreational areas within existing neighborhoods, where needed.

7. Encourage residential development that does not overly disrupt the character of rural areas in the town.

8. Encourage independent living for elders, handicapped and others with special needs.

9. Seek State/Federal or private assistance for senior or low and moderate income housing.

10. Maintain the viability of the existing housing stock through code enforcement and provision of neighborhood amenities.

11. Develop creative techniques for land development in order to preserve rural character. Improve cluster zoning and encourage quality cluster development.

3.5 HOUSING RECOMMENDATIONS

As stated in the Guide Plan for Future Land Use, it is recommended that future housing be concentrated in the more urbanized parts of the town, preserving the rural character of the less developed areas. A greater variety of housing types and densities is to be encouraged in order to provide for the housing needs of various population groups and to enhance neighborhood character.

Compact Housing

Besides preserving rural character, encouraging a more compact pattern of residential development in place of dispersed low density housing will also reduce the costs related to infrastructure (roads, water, sewer, etc.), and possibly the numbers of additional schoolchildren if a diversity of housing types is developed. Cluster development (called Open Space Residential development in the Zoning Bylaw) is a useful tool to promote compact housing and preserve open space. Other alternatives for encouraging open space preservation in combination with residential development are included in the Open Space and Implementation sections.

Regulatory Changes

Changes to the density of residential development are discussed in Section 1, Land Use. In addition to these changes, the Town may wish to consider requiring cluster development in certain areas where it would like to protect natural resources and agricultural land. Section 8, Implementation, discusses specific recommendations for changes in the bylaws.

Development Standards

Site plan review for larger residential development projects, as well as strict enforcement of codes for all existing homes and new projects will ensure that development meets appropriate standards and is not over-crowded.

Grandfathered Lots
Although zoning requires larger lot sizes for new development, houses in some neighborhoods are typically on lots as small as 5,000 square feet, and many small vacant lots in these neighborhoods are grandfathered to allow development. Infill within and adjacent to higher density neighborhoods is to be encouraged where water and sewer capacity exist to support it, except in the area around Long Pond. However, such lots should be utilized for smaller homes, which are needed in the current market, rather than large homes. New regulations to control the size of structures on smaller lots may be required. A recent proposal to address this problem in Wayland is shown in Appendix 1-3.

Services
Infrastructure and amenities which contribute to the quality of residential neighborhoods include water and sewer facilities, roads, recreation facilities, landscaping, and social services. The best locations for higher density development take advantage of existing or proposed infrastructure that are of sufficient capacity to provide for the residents of a development. Some of these services may be provided in conjunction with the development of a residential project; the Town may require such services to be provided to serve a given development as a condition for approval.

Specialized Housing
Specialized housing includes housing for seniors, handicapped persons, young adults, and other persons for whom detached single family homes are not a viable option. A range of housing types exist to meet the needs of the elderly and physically impaired. Some housing might be located in a group environment, with arrangements that provide independent living, assisted living, congregate housing, and/or on-site health care facilities. Apartments, townhouses, and condominiums can also meet the needs of seniors, young adults, and other segments of the population. Specialized housing is needed for various income levels, including units that are affordable for low and moderate income persons and market rate units. The former mill structures at Collinsville and Navy Yard are possible sites to provide specialized housing.

Affordable Housing
The Town can undertake specific measures to encourage the development of affordable housing. Affordable housing might take the form of homes for purchase or rent, multifamily units, or senior housing, and may be located in mixed income developments. A local housing partnership, as mentioned above, can help to promote the development of housing to meet the needs of low and moderate income persons. Negotiation with developers seeking comprehensive permits through the State's Local Initiative Program (LIP) under Chapter 774 will ensure that such development meets the Town's standards and avoid litigation. Establishing guidelines for higher density development than is permitted to be developed by right or with a special permit under the zoning bylaw can help to increase the Town's control over development that takes place under a comprehensive permit.

The Town can also encourage the development of more affordable housing through the use of inclusionary zoning, whereby any residential development over a specific threshold will trigger a requirement to provide a number or percentage of affordable units. Such units can be provided either on the development site or by contributing to a fund to create affordable housing elsewhere in Dracut.

Entity to Diversify Housing
A non-profit housing corporation or local housing partnership can function to identify housing needs and pursue private or government assistance to meet those needs. The Dracut Housing Authority deals primarily with low income housing. Another entity is needed to focus on creating new moderate income and special needs housing. Such an entity can also participate directly in the State's LIP program.

3.6 RESOURCES

Resources available to assist in the provision of various types of housing are contained in Section 8, Implementation.

Section 4:
ENVIRONMENT & OPEN SPACE

Section 4: ENVIRONMENT & OPEN SPACE

4.1 INTRODUCTION

Dracut is a semi-rural town with a wealth of freshwater, forest, and farmland resources. Because of growing development pressures in Dracut, it is important to identify these resources and to establish a plan to protect them now, so that development can occur without destroying the town's rural character and natural environmental. This section of the Master Plan identifies Dracut's natural resources and protected and unprotected open spaces, and discusses existing provisions for their protection. Where open space and natural resources are inadequately protected, specific courses of action are recommended to protect these resources.

The Town of Dracut Open Space and Recreation Plan of 1996 outlines a five-year course of action to protect the town's special places and natural resources. This Plan identified a few salient goals, including:

- Preservation of farmland and forests;
- Protection of water resources and shorelines;
- Public education about land protection and donation options, pollution prevention, and local water resources;
- Protection of rare vegetative communities and endangered species; and
- Consideration of a systems of trails and greenways throughout the town.

In recent years, the Conservation Commission and other town agencies have addressed these needs only to a limited extent. The Town has not been as active as it could be in pursuing land acquisition options and negotiating with developers to obtain open space concessions in the subdivision approval process. The Conservation Commission has lacked the money and person power either to acquire much open space or to increase the degree of protection on existing open space.

The Environment and Open Space section of the Master Plan uses the 1996 Open Space and Recreation Plan as starting-point for conservation goals, strategies, and recommendations. Recognizing that significant residential development is likely to occur in Dracut in the coming years, the recommendations section focuses on ways to insure that new development takes place in an ecologically sound manner that preserves Dracut's defining rural character.

4.2 EXISTING OPEN SPACE AND PROVISIONS FOR ITS PROTECTION

Open Space Inventory

Dracut's open space lands were identified using information from MassGIS (a branch of the Massachusetts Executive Office of Environmental Affairs), the Dracut Conservation Commission and Assessors Office, and the Dracut Open Space and Recreation Plan. These lands are classified according to ownership in Table 4-1 and Figure 4-1.

Table 4-1
Protected and Unprotected Open Space in Dracut

Ownership	Acres (% of town)	Protection Status
Town recreation land	130 (0.9%)	Limited protection
Town conservation land, managed by the Conservation Commission	194 (1.4%)	Protected in perpetuity
Agricultural Protection Restriction (State of Massachusetts)	110 (0.8%)	Protected in perpetuity
State Forest	543 (4.0%)	Protected in perpetuity
Private conservation restriction	38 (0.3%)	Protected in perpetuity
Private: held in Chapter 61A for agriculture	2,121 (15.5%)	Temporarily protected
Private: held in Chapter 61B for recreation	51 (0.4%)	Temporarily protected
Private undeveloped land in parcels >10 acres	3,004 (21.9%)	Unprotected
Total Protected Open Space	885 (6.5%)	
Total Open Space with Limited or Temporary Protection	2,302 (16.8%)	
Total Unprotected Open Space	3,004 (21.9%)	
Total Existing Open Space	**6,191 (45.0%)**	

Sources: MassGIS, Dracut Conservation Commission, Dracut Assessors Office, Dracut Open Space and Recreation Plan.

Public Land. Approximately 3,159 of Dracut's 13,743 acres are protected or semi-protected open space. Of this land, 737 acres, or 5.4% of the Town, is publicly owned protected open space, managed by the State or by the Dracut Conservation Commission for conservation purposes. An additional 130 acres is Town-owned recreation land such as parks and playgrounds. This land is not considered protected since it is subject to a change in use.

Chapter 61A and 61B Land. Almost 16% of Dracut's land area is temporarily protected under Chapters 61A or 61B of the Massachusetts General Laws. Under these laws, property owners receive tax credits for retaining their land in agricultural or recreational uses, respectively, rather than selling or developing this land. Chapter 61A is most commonly applied to agricultural or horticultural land but can be used for the forested portions of a farm, provided a forest management plan is approved by the Massachusetts Department of Environmental Management. To qualify for Chapter 61A, a farm owner must have five or more contiguous acres being used for agricultural or horticultural purposes. This land must produce annual gross sales of not less than $500.00. For each additional acre over five, the minimum produce value is $5.00. There is no product value for woodlands and wetlands, for which the added value is $0.50 per acre. Property under Chapter 61A is assessed at rates that vary for different agricultural uses. Generally, classification will result in a reduction of 80% in assessed value.

There are penalties associated with removing land from classification under Chapter 61A that include paying back taxes plus interest. If Chapter 61A land is placed on the market, the town has the "right of first refusal" for purchase of the land for 120 days. This right may also be assigned to a non-profit conservation organization such as a land trust. In reality, towns often have trouble taking advantage of the right of first refusal, because they must have available a large cash reserve to buy the land, as well as a

political structure that can quickly approve the purchase. For practical purposes, Chapter lands are protected only tenuously and temporarily.

Chapter 61B is similar to 61A, but applies to lands designated for recreational use, containing at least five contiguous acres. The land must be retained in a natural state to preserve wildlife and natural resources, must be devoted primarily to recreational use, and must provide a public benefit. Recreational uses include hiking, camping, nature study, shooting/target practice, hunting, and skiing. The assessed valuation of Chapter 61B land is reduced by approximately 75%.

Private Land. An additional 1.1% of the town is privately-owned open space with various forms of protection, such as Agricultural Preservation Restrictions (APRs) and private Conservation Restrictions (CRs). APRs are deed restrictions that limit the uses of a piece of farmland in perpetuity, usually to prohibit most kinds of development. APRs remain with the land, even when it changes ownership. The State APR program purchases development rights from farmers in order to keep good agricultural land in production.

CRs are similar to APRs, but can apply to non-agricultural lands, such as forests and open meadows. CRs typically prohibit or severely limit development on a piece of land, and may impose additional restrictions, as well. CRs may be donated by a landowner, or they may be purchased by the Town or a private organization such as a land trust.

The largest single component of Dracut's open space, comprising about 22% of the Town's land area, is privately-held, unprotected, undeveloped lands. In the absence of measures to protect these lands, many are likely to be developed as market dictates—primarily as subdivisions of single-family homes. For example, as of 1996, approximately 700 new single-family homes (which would consume 700 or more acres of open land) were either under construction, approved for construction, or pending approval.

One category of privately-owned open space that is notably absent in Dracut is land held by nonprofit conservation organizations. Unlike many Massachusetts towns, Dracut does not have a land preservation organization specific to its town or region, nor do statewide or nationwide organizations such as the Audubon Society or Nature Conservancy own land in Town. Whereas other rural and semi-rural Massachusetts towns often have 3% or more of their land area protected by non-profit organizations, this presence is virtually absent in Dracut.

Significant Open Space Parcels. Some of Dracut's largest and most important open spaces include:

- **Lowell-Dracut State Forest:** This forest is Dracut's largest tract of mature, high-canopy woodland. Visitors use the forest for hiking, bird watching, mountain biking, cross country skiing, and horseback riding.

- **Dunlap Conservation Area:** This area is a mixed pine and hardwood forest surrounding a pond and wetlands. The water bodies provide a diverse group of habitats for birds and aquatic wildlife, including a cattail swamp, forested wetlands, and a riparian zone with numerous snags. The area is excellent for bird watching. Local Eagle Scouts recently built a short interpretive trail through the area.

- **East Dracut Farmland:** The farms of East Dracut produce a variety of goods for the local market, including vegetables, fruits, and hay. The rolling topography of East Dracut combined with the open spaces created by farmland produce excellent views, especially from Broadway and Marsh Hill Road.

- **VFW Parcel:** This 50± acre parcel located west of Bridge Street was formerly a firing range owned by the Veterans of Foreign Wars. The property is mostly wetlands.

- **AVCO APR:** This 110-acre parcel of farmland located on March Hill Road in East Dracut is protected by the state's Agricultural Preservation Restriction program.

- **Beaver Brook Floodplain:** Beaver Brook provides habitat for riparian wildlife and indigenous game and fish species. This brook is flanked by a significant wetland system, and has a wide 100-year floodplain. Much of the land along Beaver Brook is unbuildable because of wetland and flood constraints. Although Beaver Brook would be an ideal location for a greenbelt for recreational and wildlife uses, the banks are almost entirely in private ownership at present.

Scenic Resources
According to recent surveys, Dracut's scenic resources are a major contributor to quality of life in the Town. Travelers on Broadway, Marsh Hill Road, Wheeler Road, and other scenic routes enjoy the Town's sweeping pastoral views, dense forests, and natural streams. The 1996 Open Space survey ranked the four most attractive landscape features in Dracut as: 1) the Marsh Hill area; 2) farmland in general; 3) Beaver Brook; and 4) the State Forest.

Preserving scenic resources will be a major challenge for Dracut in the coming years. Recent development patterns in East Dracut have resulted in many new homes being built along scenic roadways, which rewards the homeowner with a great backyard view, but blocks the same view for hundreds of passersby. The loss of productive farmland, both to development and to natural succession, also fills in the open land that offers expansive views of the countryside. A final challenge is to enhance the scenic character of Dracut's rivers and streams, where past land use patterns have tended to impede public access and block views of the waterway.

Provisions for Open Space Protection
Currently, the opportunities for open space protection in Dracut are severely limited by financial and personnel constraints. The Conservation Commission does not have an annual budget for land acquisition. The land acquisition fund, which currently contains about $40,000, is a holdover from previous fiscal years when the Conservation Commission received a small annual budget item for land acquisition. The small paid staff dedicated to conservation issues typically does not have the time to pursue land acquisition opportunities, apply for state and federal self-help grants, and institute other conservation programs, and the Town has not effectively harnessed the work of volunteers to perform this work.

The Dracut Zoning By-laws include certain measures designed to protect open space, although not all of these regulations are very effective:

- **Large Lot Zoning:** In the 1980s, most of Dracut's residential land was rezoned to require a 40,000 square foot (about one acre) minimum lot size, and the remaining portion, in the Marsh Hill area, was rezoned to require 80,000 square foot lots (about two acres). Development has not yet taken place in the 80,000 square foot district. Large lot zoning can preserve open space and rural character if house lots maintain natural vegetation and screening, and are well-designed to blend into the surrounding landscape. Unfortunately, some of the recent development created under Dracut's large lot zoning laws has failed to preserve natural resources or rural character, and has only consumed large amounts of land, thus hastening the loss of Dracut's open space.

- **Open Space Residential Development ("Cluster Zoning"):** This law allows developers to "cluster" homes onto a portion of the development parcel, while retaining the remainder of the parcel

as protected open space, subject to the granting of a special permit by the Planning Board. The total number of units that can be developed on a given parcel remains the same. The developer benefits by saving money on road and utility construction costs, while the future homeowners and the Town benefit by the creation protected open space. Dracut's Open Space Residential By-law has been used to a limited extent, with moderate success.

- **Residential Golf Course Planned Development:** This provision allows developers, subject to the granting of a special permit, to build single-family homes around a golf course at a density exceeding normally-allowed densities. The stated purpose of the law is to promote more creative development of land and to preserve open space.

- **Subdivision Regulations:** These regulations include recommendations that developers protect natural features that will add value and attractiveness to their subdivision, and that new subdivisions set aside recreational land for parks or playgrounds.

Local and state environmental regulations also offer some open space protection. Regulations prohibit most development on and/or near floodplains, wetlands, streams, and ponds. Limited restrictions also apply to areas with rare species habitat, high groundwater, and other environmental constraints. Though inexpensive, this form of open space protection is less certain than acquisition in the long term, since environmental laws are subject to change. These environmental regulations are discussed further in Section 4.3.

4.3 EXISTING NATURAL RESOURCES AND PROVISIONS FOR THEIR PROTECTION

This sub-section identifies Dracut's natural and cultural resources, using information from the Dracut Open Space and Recreation Plan (1996), MassGIS, the Massachusetts Natural Heritage Program, interviews with town officials, and other sources. The Geographic Information System (GIS) maps which supplement this section display the spatial extent of each resource. This section also examines the existing provisions for natural resource protection, such as environmental laws and management programs.

Freshwater Ponds and Rivers

Surface water, including ponds, streams, and the Merrimack River, covers about 295 acres of Dracut. Three large ponds and several smaller ponds provide recreational opportunities such as fishing, swimming, and boating. These ponds include:

- **Mascuppic Lake:** This lake is 215 acres overall but has only 6 acres in Dracut. Access is available at a very small town-owned beach and a state-owned boat launch on the eastern shore of the lake. The location and configuration of this beach makes it not conducive to swimming or sunbathing. Otherwise, the Dracut shore of Mascuppic Lake is ringed with private homes. In 1988, the Division of Water Pollution Control identified this pond as "impaired" because of algal growth, aquatic weeds, and high nutrient content. Homes around the lake were sewered in the late 1980s to lessen lake pollution.

- **Long Pond:** Pedestrian and boat access to a small town-owned beach on the eastern shore of this pond is available to Dracut residents who pay an annual usage fee. In 1988, the Division of Water Pollution Control identified this pond as "impaired" because of algal growth, aquatic weeds, and high nutrient content. In 1995 Dracut and Tyngsboro received a Small Lakes and Ponds Grant to perform chemical weed control on Long Pond and Dracut has continued to conduct annual treatments.

- **Peters Pond:** This pond is entirely private except for a small, hard-to-access public boat ramp. According to the Town's Comprehensive Wastewater Management Plan (prepared by Camp, Dresser, and McKee, 1998), many of the homes surrounding the pond have septic system problems, which cause eutrophication, or excessive nutrient loading, in the pond. These added nutrients, combined with the pond's shallow depth and lack of inlets or outlets, result in algae blooms that make the lake unappealing for swimming.

The Merrimack River is the second largest river in Massachusetts after the Connecticut, and drains a large watershed that includes southeastern New Hampshire and northeastern Massachusetts. The section of the Merrimack River that borders Dracut is designated as a Class B waterway, and as such must be protected for the propagation of fish and other aquatic life and for swimming and boating uses. The river easily meets this designation under low flow conditions, but has trouble doing so in wet conditions, when combined sewer outflows from Lowell plus nonpoint source pollution from upstream communities contribute a significant pollutant load to the river.

Other perennial streams in Dracut include Beaver Brook, Trout Brook, Richardson Brook, Bartlett Brook, Peppermint Brook, and Double Brook, all of which flow into the Merrimack River. These streams are all designated as low flow waters by the Massachusetts DEP, Division of Water Pollution Control, and therefore are unable to accept pollutant discharges. Beaver Brook flows south from New Hampshire in the western part of Dracut, and serves as a fish and wildlife habitat and an irrigation source for nearby farms. Trout, Richardson, and Beaver Brooks are stocked with trout by the state.

According to the Modified Final Judgment (MFJ) of the Suffolk Superior Court (1997), most of Dracut's rivers and streams receive pollution from Town-owned or -operated stormwater drainage systems. The requirements specified in the MFJ that the Town construct sewers in certain areas are intended to correct these longstanding discharge problems.

Existing Protection for Freshwater Resources. The Massachusetts Rivers Protection Act of 1996 restricts development within 200 feet of perennial rivers and streams (defined provisionally as those streams that appear as dark blue lines on U.S.G.S. topographic maps). The Dracut Conservation Commission administers this Act. Typically, development is allowed within 100 feet of rivers only under extraordinary circumstances, but certain types of development are sometimes allowed between 100 feet and 200 feet of streams. According the recent studies in the scientific literature, the area within 200 feet of the riverbank can play an important ecological role by serving as the recharge area for rivers, by providing a complimentary habitat for riparian species requiring upland resources, and by allowing riparian corridors to serve as effective migration corridors for species requiring larger habitat areas. Currently, Dracut's riparian corridors are primarily undeveloped, but much of this land is unprotected.

The Dracut Flood Plain and Floodway District is an overlay district that regulates land use in flood-prone areas designated as A, A1-30, AE, AH, and A99 on the Flood Insurance Rate Maps (FIRM). In the interest of maintaining the flood storage capacity of floodplains and avoiding property damage, all new construction or earth moving is prohibited in this district, except certain agricultural and conservation uses, repairs to pre-existing structures, and new structures that have been shown by an engineer not to be subject to flooding.

Ponds and streams are also regulated under the Massachusetts Wetlands Protection Act, discussed below.

Freshwater Wetlands

Wetlands are areas characterized by standing water, hydric soils, and/or water-tolerant vegetation, and typically occur along the shorelines of ponds and streams as well as in isolated depressions in upland

areas. Dracut has approximately 1,900 acres of freshwater wetlands, marshes, and swamps, or about 14.2% of the town's land area. As is typical for this region, more than half these wetlands are non-forested bordering wetlands associated with streams or ponds. Wetlands provide several benefits both to humans and to ecological communities. Important wetland functions regulated under the Massachusetts Wetlands Protection Act including the following:

- **Pollution Control:** Vegetated wetlands remove or detain sediments, nutrients (such as nitrogen and phosphorus), and toxic substances (such as heavy metals) that are found in run-off and flood waters.

- **Flood Control:** Vegetated wetlands temporarily store flood waters, allowing some evaporation and slowing the release of flood waters to downstream areas.

- **Storm Damage Prevention:** The reduction of the quantity and flow of flood waters lessens damage to private and public property.

- **Wildlife Habitat:** The hydrologic regime, plant communities, soils, topography and water chemistry of vegetated wetlands provide food, shelter, migratory, overwintering and breeding areas for many birds, mammals, amphibians and reptiles. Thirty-five percent of plants and animals that are listed as endangered or threatened in the United States live in wetlands or depend upon them for survival.

- **Fisheries:** Vegetated wetlands provide habitat for insects and aquatic invertebrates, which are an important source of food for fish.

- **Ground Water Supply:** Some vegetated wetlands discharge ground water to the surface. Wetlands also aid in maintaining base flow levels in rivers and streams and filter and clean surface water as it percolates into the groundwater.

- **Public and Private Water Supply:** Vegetated wetlands help maintain high-quality groundwater, a primary source of drinking water in many communities including Dracut.

Another benefit of wetlands not discussed in the Wetland Protection Act is:

- **Passive Recreation:** Vegetated wetlands provide opportunities for nature study, photography, bird-watching, and other recreational uses.

Existing Protection for Wetlands. The jurisdiction of the MA Wetlands Protection Act applies to activity within 100 feet of wetlands and other water bodies. The Dracut Conservation Commission administers this law, and considers applications for activities in wetlands and buffer zones. Generally wetland alteration is allowed only in small areas when there are no feasible alternatives, and is subject to the condition that an equivalent amount of wetland must be replicated elsewhere. In wetland buffer zones, work is often allowed subject to an Order of Conditions from the Conservation Commission. Although the Conservation Commission has some discretion in deciding how much development to allow in wetlands and buffer zones, the MA Department of Environmental Protection has the authority to override any Conservation Commission decision.

The Dracut Wetland and Water Conservancy District is an overlay district that further regulates land use in and near wetlands. New construction and earth moving are prohibited in the district, as are sewage disposal, dumping, and storage of toxic or leachable substances. Certain conservation and agricultural uses are permitted, as are repairs to certain existing public facilities.

Groundwater Resources
Dracut contains two main types of geological deposits. Stratified sand and gravel deposits are porous, transmit groundwater well, and comprise Dracut's aquifers. Till deposits are relatively packed, transmit groundwater poorly, and serve as the boundaries between aquifers. Groundwater recharge occurs primarily through stratified drift formations, wetlands, and surface water bodies. According to the 1996 Open Space and Recreation Plan, the two areas richest in groundwater are the southeast corner of town, extending from the shores of the Merrimack River up to and including the wetlands surrounding Nickel mine, and the area around Beaver Brook and its tributaries.

Groundwater is the major source of domestic water for Dracut residents, although domestic water also comes from the wellfield in Tyngsboro and the Merrimack River. Dracut contains two active wells located off of Hildreth Street, as shown on Figure 4-2. This map also shows that the aquifers in Dracut are quite limited, and therefore future expansion of the town water supply will likely come from the Merrimack River, not from groundwater.

Wellheads in Massachusetts are typically protected by two land-use restriction zones. In the Zone I exclusion area, which extends 400 feet in all directions from the wellhead, no construction or earth moving may take place. The Zone II exclusion area limits subsurface disposal of sewage and certain other activities, but allows the construction of new structures. Zone II areas provide direct recharge to public wells, and in Dracut are provisionally defined as a ½-mile radius around the wellhead, until hydrologic studies are able better to define the extent of the recharge area.

Title 5 of the Massachusetts State Environmental Code controls the placement of on-site sewage disposal systems for new development, to prevent contaminated groundwater and other environmental problems. Soils that are too porous or too impermeable are unsuitable for septic tanks, as are areas of high groundwater such as wetlands. However, according the Comprehensive Wastewater Management Plan (1998), over 90% of Dracut's soils are likely unsuitable for septic systems, including some areas which currently contain septic systems. The relatively high rate of septic failures in the Town suggests that groundwater pollution is likely occurring in certain areas.

Wildlife Habitat and Rare Species and Habitats
Dracut's matrix of forests, fields, water bodies, and edge zones provides habitat for a variety of mammals, including chipmunks, squirrels, muskrats, minks, weasels, woodchucks, beavers, raccoons, moose, and deer, and for birds such as blue jays, robins, sparrows, orioles, woodpeckers, owls, herons, kingfishers, and bald eagles. The suburbanization of Dracut insures that there is and will continue to be plenty of edge habitat where two or more land-use types abut—habitat useful for common species such rabbit, squirrel, ruffed grouse, and quail. However, there are few large, unfragmented parcels of wildlife habitat suitable for Dracut's less common mammals, such as deer, as well for amphibians and reptiles that are threatened by roads, houses, and other forms of habitat fragmentation. The most significant large habitat area is the Lowell-Dracut State Forest.

The Massachusetts Natural Heritage Program has identified four plant and animal species in Dracut that are considered endangered, threatened, or of special concern, including the Purple Milkweed (*Asclepias purpurascens*), the Indian Paintbrush (*Castilleja coccinea*), the Twelve-Spotted Tiger Beetle (*Cicindela duodecimguttata*), and the Purple Tiger Beetle (*Cicindela purpurea*).

Three of Dracut's natural habitats play an especially important role in the region's ecology by providing habitat for rare or endangered species or by providing migratory corridors for wildlife:

- **Lowell-Dracut State Forest:** A portion of this forest is designated by the Natural Heritage Program as a Priority Habitat for Rare Species. The area of this designation is shown on Figure 4-2. In

addition, the forest is the keystone of a wildlife corridor extending from the Merrimack River to New Hampshire.

- **Wetlands and vernal pools**: Wetlands and vernal pools provide habitat for rare amphibian and bird species. Many species that utilize vernal pools and wetlands also require adjacent upland for a viable habitat.

- **Rivers and streams:** Dracut's rivers and streams support a growing fish population that includes bass, pike, perch, sunfish and trout. Also, a substantial salmon population is returning to the Merrimack River.

4.4 ENVIRONMENT AND OPEN SPACE GOALS

Recent surveys of Dracut residents, plus public meetings held during the master planning process, indicate general consensus concerning open space and natural resource management. For the most part, Dracut residents value and wish to preserve the Town's rural character, open space, farmland, and scenic vistas. The 649 respondents to the townwide survey distributed in July 1998 indicated the following responses:

There was substantial support for protecting Dracut's significant open space and natural resources. Percentages of respondents favoring the protection of each resource are as follows:

Farmland – 76%
Lakes and Ponds – 74%
Forest Land – 72%
Rivers and Streams – 69%
Aquifers/Drinking Water Sources – 64%
Wildlife Habitats – 60%
Greenways/Recreation Trails – 51%
None of the Above – 1%

Respondents showed strong support for low-cost land acquisition methods and limited support for more costly methods. Percentages of respondents favoring each acquisition methods are as follows:

Land donations and conservation restrictions from landowners – 69%
Approve land purchases at Town Meeting – 43%
Vote for an open space bond issue at Town Meeting – 27%
Pay an additional $25 in Town taxes annually for open space preservation – 26%
Pay an additional $100 in Town taxes annually for open space preservation – 8%

The opinions expressed in the survey challenge Dracut to find low-cost ways to preserve its environment and open space.

Open Space Goals

1. Increase the Town's open space holdings, including woodlands, wetlands, farmland, and water resources and their shorelines.

2. Increase the level of protection on private farmland under Chapter 61A.

3. Plan and establish a townwide system of trails and greenways that connects neighborhoods to major open space in the Town.

4. Focus on protecting large contiguous blocks of open space.

5. Protect the town's scenic resources.

6. Evaluate and mitigate the secondary growth impacts of the proposed expansions to the sewer system.

7. Increase public knowledge of and access to open space.

8. Educate the public–especially large landowners–on the options for and benefits of preserving land as open space.

Natural Resource Goals

1. Protect ponds and streams from the threats of point-source and nonpoint-source pollution, and improve water quality through proper management.

2. Protect wetlands from development and pollution.

3. Protect against groundwater pollution, especially in areas where septic systems and private wells are used.

4. Protect valuable stands of vegetation and endangered species habitats.

5. Manage habitat areas to accommodate wildlife and recreation uses.

6. Protect against the potential environmental impacts of industrial development in East Dracut, such as light and noise pollution.

7. Educate Town residents about the problems of land, water, and air pollution and how they can help prevent these problems in Dracut.

4.5 OPEN SPACE RECOMMENDATIONS

Based on public input provided at community master plan meetings and through the two recent surveys, Dracut residents are in firm agreement that the Town needs additional protected open space. What is less clear is how the Town should acquire this open space, and how much money it is willing to spend to do so. The following recommendations for open space protection include low-cost and full cost mechanisms, as well as legal protections. Given the substantial amount of open space that the Town will need to acquire in the upcoming years to meet its goals, it will be necessary to implement many or all of the following recommendations.

Open Space Pays

The Cost/Benefit Analysis of Open Space Acquisition presented in Appendix 4-1 compares the taxpayer cost of acquiring undeveloped land as open space versus the cost of developing the land for residential use. As an example, the Open Space Pays analysis considers a hypothetical 100-acre parcel of undeveloped land in Dracut.

In Dracut, the revenue generated from new homes typically does not pay for the new services (especially schools) required by those homes. The development of a 100-acre parcel into single family homes would cost the average taxpayer $22.49 per year in new property taxes, indefinitely. By comparison, it would cost the average taxpayer between $9.97 and $12.46 per year for 20 years (assuming the purchase is funded with a 20 year bonds) to acquire the 100-acre parcel as open space. After the 20 year bond repayment period, the open space would cost the taxpayer nothing, while the hypothetical 100-acre developed parcel would continue to cost the average taxpayer $22.49 per year.

This analysis demonstrates that, both in the short term and in the long term, buying open space is significantly less expensive than allowing undeveloped land to be converted to residential use. In addition, open space provides many benefits that are difficult to quantify in monetary terms, including the protection of water and land resources, wildlife habitat, recreational opportunities, and scenic beauty.

Land Acquisition and Protection

Based on the conclusions of the Cost/Benefit analysis for open space acquisition, the Town should initiate an active program of land protection as follows:

1. Priorities for open space protection should focus on Dracut's most unique and most irreplaceable resources, as well as those resources not currently protected by state and local environmental laws. The highest-priority areas for open space acquisition should be parcels that contain some of the following features or serve some these purposes:

    a. Active farmland, especially on excellent agricultural soils
    b. Areas that afford scenic views, especially open fields and hilltops
    c. Open spaces in western and central Dracut, in close proximity to residential neighborhoods
    d. Land adjacent to rivers and streams
    e. Land adjacent to ponds, especially areas with potential recreational use
    f. Habitat for rare or endangered plants and wildlife
    g. Land that abuts large, contiguous protected areas
    h. Lands that connect existing open space parcels or create corridors ("greenways")

2. Figure 4-3 ("Open Space Recommendations") identifies some of the areas that best meet these criteria and that should be considered for protection for open space.

3. The Town should aggressively pursue the protection of Chapter 61A properties, which currently account for 15.5% of Dracut's land area. The first step in this process is to prioritize the Chapter lands in terms of their value to the Town. Then, the Town should contact the owners of especially important Chapter lands to negotiate purchase or easement before such lands are placed on the market.

4. The Town should work to connect its open space parcels through a variety of mechanisms, including the donation of linear easements to permit public access through private property. The Planning Board should encourage subdivision developers to donate such easements to the Town to help establish a network of public-access transportation and recreation corridors linking open space parcels.

5. The Town should create an Open Space Committee to research potential land purchases, work with land trusts, apply for open space grants, plan and implement greenways, and perform other conservation tasks.

"Urban" Open Spaces. In portions of western and central Dracut, open land is scarce because of existing residential and commercial development. Protecting the remaining open space in these areas is especially important since this land is near the greatest portion of Dracut's population. The new recreational facility under construction on Route 113 near the Town center represents an important initiative in making open space more accessible to central Dracut residents. In western and central Dracut, the Town should focus on acquiring small, accessible parcels that residents can visit on a regular basis to picnic, walk, play frisbee or other sports, or swim. Parcels of this type include the sand and gravel operation east of Beaver Brook, which may be the Dracut's only feasible option for creating a pleasant public swimming beach in Town; and the open field at the corner of Mammoth Street and Nashua Road, which currently serves as a visual "gateway" to the Town from the south.

Recommended Policies for Land Protection

Funding Options. To create an effective system for funding open space purchases, the Town must implement mechanisms that ensure both a long-term supply of money and the ability to obtain and spend cash on short notice. Open space funding programs should always be presented and justified in terms of the Cost/Benefit analysis above: in both the short term and the long term, moderate amounts of open space acquisition are *less* expensive than development.

1. The Open Space Committee should actively pursue grants from state and federal sources. A variety of grants for open space acquisition, water quality protection, trails and greenways, and other projects is described below in Section 4-6.

2. The Town should consider an open space bond issue to provide ongoing revenue for open space protection. The advantage of bonds is that they spread the cost of open space purchases over many years. Since open space will benefit future generations, it is reasonable to ask them to pay some of the costs.

3. If the Town chooses not to issue open space bonds, it should re-institute an annual budget item for land acquisition. The annual budget appropriation should be in the range of $250,000 to $500,000, or approximately $8-17 per Town resident. The budget should be automatically renewed on an annual basis, subject to Town Meeting action that changes the annual allocation.

4. The Town should use some or all of the income generated from open space bonds and/or appropriations to establish an emergency land acquisition fund to purchase open space in time-critical situations, including land made available to the Town under Chapter 61's Right of First Refusal.

5. If and when the State passes legislation enabling towns to institute real estate transfer taxes dedicated to open space protection and other uses, Dracut should consider instituting such a tax. The tax does not penalize existing landowners who sell their land; it only affects the purchaser of the property. (For more information on this legislation, see *Community Preservation Act* in Section 4-7, below.)

Low-Cost Land Protection Mechanisms. The following low-cost land protection mechanisms rely on the benevolent actions of landowners, public agencies, or nonprofit conservation organizations. Citizen involvement and volunteer efforts can help Dracut attract these kinds of contributions.

1. Volunteers in the Town, including the Open Space Committee, should establish a local land trust, or work with existing land trusts to protect Dracut's open space.

2. Volunteers in the Town should work with Massachusetts land trusts to educate large landowners in Dracut about the financial and other benefits of donating property, Conservation Restrictions, or APRs.

For example, the Trustees of Reservations has indicated that it sometimes participates in seminars to inform landowners about their options for transferring land.

3. The Town should work with the State Agricultural Protection Restriction (APR) program to encourage the purchase of additional APRs in Dracut.

Transfer of Development Rights. Transfer of Development Rights (TDR) is an innovative policy that promotes multiple objectives, including protection of open space, enhancement of residential and commercial districts, and reduction of the Town's burden of providing municipal services. TDR is predicated on the legal fact that landowners possess a "bundle" of property rights, including a title to the land itself plus the right to develop or use that land in certain ways, subject to zoning laws. Under TDR, these rights (i.e. the land itself and the development rights) may be bought and sold separately.

TDR zoning ordinances usually establish two districts. The "sending district" is an area designated for open space protection where development is to be discouraged or limited, while the "receiving district" is an area that can support somewhat higher levels of development (for example, smaller lots or greater floor-area ratio). In Dracut, the likely sending district would be portions of East Dracut, while the receiving district would include portions of western and central Dracut. Under TDR, owners of land in the sending district may sell their development rights to owners of land in the receiving district to allow them to carry out their development plans.

TDR has several advantages over other land protection options:

1. It is virtually free for the Town.

2. It is market-driven: the more land is developed in the Town, the more open space is likely to be protected.

3. It has the potential to protect hundreds of acres of open space. For example, a TDR program in Montgomery County, Maryland, protected 38,251 acres of open space in 17 years.

4. It does not compromise the property rights of landowners, and, based on legal tests in the past, does not constitute a "taking."

5. It promotes more cohesive neighborhoods and commercial districts by allowing higher densities where appropriate.

TDR is especially well-suited to Dracut based on its current land use pattern. For example, many areas of western and central Dracut are zoned for 40,000 square foot residential lots, even though most existing homes sit on lots of 5,000 to 20,000 square feet. Thus, allowing higher density in these areas would help to maintain a neighborhood's existing character, whereas development under the current 40,000 square foot zoning would result in unusually large lots that could work against established moderate-income neighborhoods. Given these patterns, parts of western and central Dracut are natural receiving areas. Using TDR, the Town could protect open space in East Dracut simply by changing its laws to allow developers to maintain existing land use patterns in western and central Dracut. For these reasons, the Master Plan recommends that the Town implement TDR.

TDR laws can be written in several different ways. Successful uses of TDR in Maryland, New Jersey, and other states may provide suitable examples for Dracut to implement a TDR law of its own. If the Town chooses to pursue this powerful, low-cost land protection tool, it should seek assistance from professional

planners and/or legal counsel, who can help the Town craft a TDR law that meets its needs, within the framework of the Massachusetts Enabling Laws.

Farmland and Open Space Protection Districts. It is recommended that the Town create overlay districts for significant areas of farmland and other open space, especially in East Dracut. If the Town chooses to implement TDR, these overlay districts should correspond with the TDR "sending districts." If not, it is recommended that the following provisions be included in the Farmland and Open Space Protection District:

1. Within the overlay district, the Town should require that residential development be clustered, pursuant to the Town's Open Space Residential Development By-law. A similar requirement in Amherst, MA has succeeded in sharply curtailing loss of farmland to development.

2. Within the overlay district, additional site plan review should be required. For example, development should be sited away from areas of good farmland and environmental sensitivity and should not block scenic vistas from public ways.

3. Within the Farmland District, the Town should pursue the creation of an Agricultural Incentive Area, pursuant to Chapter 40L of the Massachusetts General Laws. This district, which requires the voluntary participation of landowners, receives priority for the purchase of APRs by the state and provides farmers with other benefits.

Cluster Zoning. The Town should thoroughly review its Open Space Residential Development By-law (OSRD) and consider ways to make this law more effective. In particular, the review process should consider the following recommendations:

1. Provide developers with a small "density bonus" or other additional financial incentives encourage them to build OSRDs instead of ordinary developments.

2. Create a well-defined OSRD law and predictable review process so that a prospective developer who seeks to build an OSRD can be confident that a well-conceived proposal will receive approval. Consider making OSRDs an allowed use by right so that OSRD developers do not face the additional hurdle of needing to obtain a special permit.

3. Revise the OSRD By-law to require that OSRDs avoid a site's most environmentally sensitive, scenic, or otherwise valuable natural resources. In addition, OSRDs should promote the creation of open spaces that are appropriate and large enough for passive or active recreation, wildlife habitat, or watershed protection.

Promoting Working Farms

Protecting working farms will require more than just buying the land or its development rights; it will require making agriculture an economically viable activity in Dracut. To this end, the following is recommended:

1. The Town should create a volunteer Farmland Committee consisting of Dracut farmers, Town officials (including a representative of the Conservation Commission), and interested citizens.

2. The Farmland Committee should provide free support to Dracut farmers, such as helping farmers select high-profit niche crops to grow; helping farmers market their crops, especially at local restaurants and markets; and helping farmers obtain needed agricultural services.

3. The Farmland Committee should work to increase the visibility of Dracut's farms, both Town-wide and region-wide. For example, the Committee could sponsor an annual farm fair or promote "agri-tourism" businesses such as U-Pick farms, petting farms, and farmers' markets.

4. The Farmland Committee should work to implement Community Supported Agriculture (CSA) programs in Town. CSAs allow persons to buy a share in a farm for a moderate fee, which guarantees them a certain portion of the farm's output for the duration of the growing season. Farmers benefit from this program since they receive up-front the money needed to cover planting costs, seeds, equipment, and the farmer's salary, while residents benefit by receiving high-quality produce (often organic) at a moderate price. Also, the risk of a crop being ruined by weather or insects is spread among the shareholders, rather than just the farmer, which could ultimately force farmer to sell his land. CSAs may be quite successful if targeted at the urban markets of Lowell, Lawrence, and Nashua, as well as within Dracut itself.

5. The Farmland Committee should educate farm landowners about the various options for protecting their land, as well as the tax and other benefits that they could enjoy. An information brochure and/or a seminar are appropriate first steps.

Planning for Greenways

Greenways have become a popular way to preserve open space, provide corridors for wildlife movement, and enhance recreational opportunities for cyclists, pedestrians, and equestrians. In many Massachusetts towns, greenways have been created along waterways, between protected open spaces, and following the path of abandoned railroad beds. Although there are presently no greenways in Dracut, several locations appear to be possible candidates for creating greenways.

1. The Open Space Committee should research the feasibility of establishing a riparian greenway in Town. In addition to being scenic places for multiple-use trails, riparian greenways provide ecological and water quality benefits.

2. The Town should transfer ownership of its Merrimack River parcels to the Conservation Commission to be managed for conservation and recreation uses. If appropriate, the Conservation Commission should building a "riverwalk" along portions of the river frontage.

3. The Town should consider developing a recreational trails on the pipeline easements in East Dracut, as shown on Figure 4-3. These easements are excellent opportunities for the linkage of open space and recreation areas across the scenic eastern region of Town.

4. The Open Space Committee should research the feasibility of establishing greenways in upland areas in East Dracut. In other Massachusetts towns, advance planning has facilitated the creation of greenways; in some cases, developers have donated or granted easements across linear strips of land for use as public trails.

4.6 NATURAL RESOURCE RECOMMENDATIONS

Freshwater Resource Recommendations

1. The Town should establish and maintain undeveloped riparian corridors wherever possible by implementing the MA Rivers Protection Act, in combination with the purchase of land and conservation easements in critical river areas.

2. The Town should work with the MA Division of Fisheries and Wildlife's Riverways and Adopt-a-Stream programs to protect local rivers and involve citizens in conservation efforts. One component of this program could be a water quality monitoring initiative on Dracut's major streams. The purpose of such a program would be diagnostic: to help identify water quality threats such as failing septic systems, discharge of raw sewage, and excessive fertilizer use by testing for fecal coliform counts, biological oxygen demand, and perhaps other indicators. The majority of water quality monitoring could be performed by interested citizens and by students in the Dracut schools, thus providing environmental education and community involvement for Town citizens.

3. The Town should educate residents, especially those who own land abutting streams, on nonpoint-source pollution, its effects, and how to avoid it.

4. The Town should explore methods to reverse the eutrophication process in Lake Mascuppic, Long Pond, and Peters Pond such as aquatic weed harvesting. For example, in 1995, Dracut and Tyngsboro were jointly awarded a Small Lakes and Ponds Grant to perform chemical weed control on Long Pond.

5. The Town should increase public access to streams and ponds for boating, fishing, and other recreational activities.

Wetlands Recommendations

State and local wetland protection laws already provide significant legal protection for Dracut's wetlands. The following measures will help to ensure that wetlands continue to receive protection:

1. The Conservation Commission should continue to enforce the Massachusetts Wetlands Protection Act to prevent sediment and other pollutants from entering wetlands during and after construction projects. In particular, the agent should enforce Orders of Conditions and ensure that siltation at construction sites is not impacting wetlands.

2. The Town should revise the Zoning By-laws to require that a minimum percentage of each residential lot in a new subdivision consist of uplands. This provision will increase the buffer between wetlands and homes, and discourage individual landowners from altering their wetlands through mowing or other damaging practices.

Groundwater Recommendations

1. The Health Department should continue to seek State funding to repair or replace failing septic systems where they contribute to pond, stream, or groundwater pollution. See Section 6 for additional recommendations on managing septic systems.

2. To encourage groundwater recharge and avoid the discharge of pollutants to the groundwater, the Town should require that all new projects in Dracut adhere to the MA Department of Environmental Protection's Stormwater Management Policy.

3. The Dracut Water Supply Districts should use its water bill mailings to disseminate information to residents who live within the ½-mile Zone II district around the Hildreth Street wells. The mailings should inform residents about things they can do to reduce aquifer contamination from household chemicals, driveway runoff, domestic fertilizers and pesticides, and other contaminants.

Fisheries and Wildlife Recommendations
As Dracut buys more open space in the upcoming years, this land will serve as a refuge for wildlife that is being squeezed out of other developing areas. In deciding which parcels of land to purchase, the Town should aim to maximize the overall value of this land for the greatest diversity of wildlife. Specifically:

1. Land acquisition priorities should focus on protecting land in Dracut's remaining large contiguous habitats, such as the Marsh Hill area and the Peters Pond/Cedar Pond area. Large undeveloped parcels provide non-fragmented habitat for mammals with larger home ranges and other disturbance-sensitive species. These priorities are reflected on Figure 4-3, which shows areas of recommended open space acquisitions.

2. The Town should expand its Wetland and Water Conservancy District to include all certified vernal pools in Dracut, plus a 100 foot buffer around the pools. The 100 foot buffer is critical because salamander species that use vernal pools for breeding also require an area of uplands around the pool for adult habitat. The law should also state that, as additional vernal pools are certified in the future, they are automatically included in this District.

3. The Conservation Commission should enlist volunteers to locate and certify vernal pools in Dracut. Existing vernal pools have no legal protection until they are certified with the Natural Heritage and Endangered Species Program.

Other Environmental Protection Recommendations
Poor environmental management can diminish the quality of life for local residents. According to view expressed at public meetings, problems such as light and noise pollution and poor site design are frequent sources of annoyance for many residents. The Town should consider implementing the following regulations are to alleviate these problems:

1. The Town should incorporate into its Environmental Protection Standards (Section 3.15 of the Zoning By-law) a clause against light pollution. Numerous towns already have light pollution laws that prohibit light fixtures that diffuse light laterally beyond property lines.

2. The Board of Selectmen should address the problem of noise generated by the trucking terminals in East Dracut, and should carefully consider secondary noise impacts when permitting future projects.

3. The Town should incorporate landscaping standards into the industrial zones so that future industrial development in East Dracut is as attractive as possible.

4. The Town should consider adopting a restriction on developing steep slopes. Steep slopes should remain vegetated and undisturbed to prevent erosion, sedimentation, and the loss or damage of property or infrastructure.

5. The Planning Board should require that applicants for subdivisions, multi-family developments, and OSRDs submit a plan of environmental "constraints and opportunities" on the site, early in the planning process (prior to the submission of a preliminary site layout plan). This schematic plan should include wetland and water bodies, significant wildlife habitats or corridors, farmland, scenic views, large shade trees (e.g. trees greater than 14" diameter at breast height), and historic or archaeological resources. Based on this information, the Planning Board and Conservation Commission should work with the developer to create a development plan that builds on the most suitable portions of the site, while preserving significant site features and natural resources.

4.7 OPEN SPACE AND NATURAL RESOURCE TOOLS

Adequate protection of Dracut's natural and cultural resources will require the use of a variety of tools, including state and local environmental regulations, self-help grants, technical assistance programs, and other tools. In 1996, Massachusetts passed a $400 million Open Space Bond Bill, providing $50 million to replenish the Self-Help and Urban Self-Help grant programs. The following list describes some of the important resource protection tools available to Dracut.

State Environmental Regulations

- **Massachusetts Environmental Policy Act.** The MEPA review process requires the proponents of large projects to examine and mitigate the environmental impacts of their projects. The Town of Dracut may influence this process by submitting comments on projects proposed in Dracut.

- **Massachusetts Wetlands Protection Act and Rivers Protection Act.** The Dracut Conservation Commission and the DEP administer these state regulations. The Commission has some discretion to determine whether activities (such as the construction of houses, septic systems, and roads) are permitted in wetlands and the 100 foot buffer zones around wetlands, and within 200 feet of perennial streams.

- **Areas of Critical Environmental Concern.** Designated and administered by the Department of Environmental Management, ACECs are intended to protect natural resources of regional importance, which often span two or more municipalities. Local citizen or government groups may petition the DEM for inclusion in the ACEC program of an outstanding natural resource in their area. Once designated, an ACEC provides additional protection against development.

- **Massachusetts Endangered Species Act.** This Act, administered through the Dracut Conservation Commission, allows for review by the Natural Heritage and Endangered Species Program of projects proposed within designated habitat areas.

Self-Help Grants

- **Massachusetts Self-Help Program.** This program provides up to 90% reimbursement for the cost of land purchase for conservation or passive outdoor recreation purposes. Projects that are successful typically protect water resources, include rare or endangered species habitat, link to other protected open space, or contain historic or archaeological resources, and include participation with other governmental or private non-profit agencies. Annual filing deadline is June 1. Contact the Division of Conservation Services at 617-727-1552.

- **Massachusetts Urban Self-Help Program.** This program provides up to 90% reimbursement for the cost of purchasing and/or developing land for recreational uses, including ballfields, golf courses, playgrounds, and other facilities. Successful acquisition projects typically provide water based recreation, link protected open space, protect rare or endangered species habitat, or protect cultural or archaeological sites. Cooperation with other governmental and nonprofit agencies is encouraged. Only municipalities with a park, playground, or recreation commission are eligible. Annual filing deadline is June 1. Contact the Division of Conservation Services at 617-727-1552.

- **Greenways and Trails Demonstration Grants Program.** The DEM provides grants of $1,000 to $3,000 to municipalities and non-profits to support innovative projects that advance the creation and promotion of greenway and trail networks in Massachusetts.

- **Lake and Pond Grant Program.** This program provides grants for comprehensive, integrated approaches to lake management, protection, and restoration. A maximum grant of $10,000 is available on a 50/50 cost sharing basis. Annual application deadline is in November or December. Contact the DEM, Office of Water Resources, at 617-727-3267.

- **National Recreational Trails Act Grant Program.** These grants provide funding for trail projects to private organizations and municipalities. Contact the DEM at 617-727-3180.

- **Forest Stewardship Program.** This program provides incentives for sound forest management on private lands. Landowners, with the assistance of DEM foresters, develop a forest stewardship plan for their property, which makes them eligible for federal cost-sharing dollars to help carry out the plan. Most grants range from $3,000 to $5,000. Contact the DEM at 617-727-3180.

- **Urban Forest Planning and Education Grants.** Grants of up to $10,000 are available to assist communities and non-profit groups in developing forestry programs that involve local residents and educators. Contact the DEM at 617-727-3180.

- **State Revolving Fund.** This fund supports water pollution abatement projects, and especially watershed management projects with substantial water quality and public health benefits. Typical projects include new wastewater treatment facilities as well as nonpoint source pollution abatement efforts. Contact the DEP at 617-292-5749.

- **Acquisition and Development Funds for Statewide Trails.** This program offers grants to acquire long-distance trail corridors as greenways linking public and nonprofit conservation land and to incorporate long-distance trails into local open space planning.

- **City and Town Commons Program.** This program provides grants to rehabilitate commons and squares in municipal centers.

- **Aquifer Land Acquisition Program.** This program provides grants to purchase lands in the primary area of contribution (Zone II) to public water supplies.

- **Massachusetts Highway Department's Bikeways Program.** Grants are available to develop bikeways and to provide bicycle parking facilities.

- **Clean Lakes Program.** This program aids municipalities in addressing problems of eutrophication of publicly owned lakes and ponds used for recreational purposes.

Community Preservation Act

Over the last several years, the Massachusetts State legislature has been debating legislation that would enable municipalities to establish a small excise tax on the transfer of land to be used for open space preservation or affordable housing. To date, this legislation has failed, although several towns have succeeded in enacting special legislation that allows them to proceed with such a program.

It is important to note that the legislation does not require municipalities to enact the deeds excise tax. In a recent draft of the bill, the maximum excise tax is 1%, and a community can exempt up to $100,000 of every purchase from this tax. The legislation would mandate that at least 10% of the fund be used for each of three programs: open space, historic preservation, and affordable housing. The remaining 70% could be allocated in a manner that meets the community's goals and objectives. In Dracut, such a revenue

stream could be used to address a number of concerns expressed by residents and town officials such as open space preservation, affordable housing, and septic system improvements.

This approach has worked in other communities, most notably Nantucket and Martha's Vineyard, which have used the funds predominantly for open space preservation, affordable housing, and maintaining community character. If this legislation becomes law, Dracut should consider adopting a real estate transfer tax. It will enhance the implementation of the recommended land use scenario by providing additional financial resources for acquiring open space, thereby protecting community character and the Town's environment.

Appendix 4-1
Cost/Benefit Analysis of Open Space Acquisition

As an example, a 100 acre parcel in the AR-2 zone is considered for acquisition for open space conservation. The following analysis shows what the fiscal cost is to the town a) if the land is developed for single-family residential use; or b) if the land is acquired for open space. The fiscal cost for land that is developed includes the cost of added services that will need to be provided to the new households less the increase in tax revenues that results from the development. The fiscal costs for acquiring land include the cost of financing the purchase and the loss in tax revenue. The cost of acquiring the land is computed for land taxed at its full assessed value as well as for Chapter 61A land for comparison. (Although actual cost of acquisition will depend upon market conditions at the time.) The following table shows how the tax rate would increase as a consequence of development or Town acquisition of the same parcel of land. The result is a higher tax increase from development than if the land is acquired.

Comparison of the Tax Rate Impacts After Development/Acquisition of Land

Land Use Scenario	Tax Rate Increase	Annual Tax Increase for Average Homeowner
Development of 100-acre parcel	$0.18/1000[1]	$22.49
Acquisition for open space of 100-acre parcel under Chapter 61A land	$0.08/1000[1][2]	$9.97
Acquisition for open space of 100-acre parcel taxed at full assessed value	$0.10/1000[2]	$12.46

[1] This does not include the fiscal impact of the repayment of back taxes in the case of the sale of Chapter 61 land.
[2] The fiscal impacts from the purchase of open space vary dramatically with the sale value of the land being purchased and the terms of a bond used to finance the purchase. See Part 2 for details.

(Continued)

(Appendix 4-1 Continued)

Inputs:

a) 1996-97 school enrollment (School Dept.)	4,144	
b) Total number of homes in 1997 (Cherry Sheet)	6,683	
c) School children per unit (1990 U.S. Census)	1.47[1]	
(From FY97 Town Budget)	$	
A) Total Budget Appropriation	37,186,304	
B) Tax Levy	20,547,111	
C) Total Valuation of Property	1,174,120,623	
D) School portion of appropriation	20,871,846	
E) Tax Rate	17.50/1000	
F) School portion of tax rate	9.06/1000	[(D/A) * E]
G) Non-school portion of tax rate	8.44/1000	(E – F)
H) School portion of tax levy	10,637,533	(C * F)
J) Non-school portion of tax levy	9,909,578	(C * G)
K) School tax per student	2,567	(H / *a*)
L) Non-school services cost per household	1,483	(J / *b*)
M) Average single-family assessment	124,629	
N) Average assessment of new homes	156,281	

Part 1 – Cost of Development

If the land were developed, it could accommodate up to 87 single-family homes, yielding 128 additional school children.

I. The total assessed value of new homes is $13,596,447 (N * 87).

II. The annual school cost for the development is $328,576 (K * 128).

III. The school portion of the tax rate increases by $0.17 (*IIIa* – F).

IIIa. New school portion of tax rate = $9.23 [(*II* + H) / (*I* + C)]

IV. The annual school revenue generated by development is $125,495 (*I* * *IIIa*).

V. The net annual school cost from development is $203,081 (*II* - *IV*).

VI. The non-school services cost of development is $129,021 (L * 87).

VII. The non-school services portion of the tax rate increases by $0.01 (*VIIa* – G).

VIIa. New non-school portion of tax rate = $8.45 [(*VI* + J) / (*I* + C)]

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(1) This estimate differs from the estimate provided by DHCD that is used for the buildout analysis. For the buildout analysis a lower estimate is used that is closer to the projected average household size. For the purposes of this exercise an estimate is used that more closely approximates the size of families that occupy new homes in the present market.

(Continued)

(Appendix 4-1 Continued)

VIII. The annual non-school revenue generated by development is $114,917 (*I* * *VIIa*).

IX. The net annual non-school cost from development is $14,104 (*VI* – *VIII*).

X. The net tax rate impact from the new development is $0.18 (*III* + *VII*).

Xa. New tax rate = $17.68 (E + *X*)

XI. The average homeowner's taxes will increase by $22.43 (M * *X*).

Part 2 – Cost of Acquisition

Assume the assessed value for the undeveloped land is $392,000. Assume that if the land is protected under Chapter 61A the taxable value is $21,500. Assume the cost to purchase the land is $1,000,000.

Ia. At full assessed value, the increase in the tax rate due to the loss in tax revenue would be $0.01 [B / (C – $392,000)].

Ib. For Chapter 61 land, the increase in the tax rate due to the loss in tax revenue would be negligible [B / (C – $21,500)].

II. The annual payment for the land purchase over 20 years would be $93,036 (1,000,000 raised by 20 year bond at 7% interest).

III. The new tax levy including the appropriation for land payment is $20,640,147 (B + *II*).

IVa. At full assessed value, the cost of payment for the acquisition would raise the tax rate by $0.09 [*III* / (C – $750,000)].

IVb. For Chapter 61 land, the cost of payment for acquisition would raise the tax rate by $0.08 [*III* / (C – $40,000)].

Va. At full assessed value, the new tax rate after the acquisition would be $0.10 (*Ia* + *IV*a).

Vb. For Chapter 61 land, the new tax rate after the acquisition would be $0.08 (*Ib* + *IV*b).

V. The average homeowner's taxes would increase by $12.46 if the land is taxed at full assessed value, while the increase would be $9.97 if the land is protected under Chapter 61.

Section 5:
HISTORIC & CULTURAL RESOURCES

Section 5: HISTORIC & CULTURAL RESOURCES

Dracut is rich in historical resources and properties - from Dracut Center to its industrial mill buildings. Efforts have been made to preserve that past. Recently, for example, the Historical Society has saved an important part of Dracut's past by acquiring, preserving, and relocating Harmony Hall so that it can be productively used, once again, as a new public meeting space for the entire town.

However, in spite of significant efforts such as this one, most historic (or culturally significant) properties, such as Dracut's industrial mill buildings, are not now either well known, identified, or protected from eventual redevelopment or demolition. Therefore, in order to maintain its historic character for future generations, Dracut may wish to survey its resources, increase public awareness of their existence, establish priorities for preservation, and establish historic districts or provide historic designation to individual properties, with the consent of property owners, to provide protections.

5.1 OVERVIEW OF EXISTING HISTORIC & CULTURAL RESOURCES

Historic Areas
A variety of historic sites throughout Dracut collectively reflect Dracut's historic variety that range from early settlements and farm communities to its industrial heritage and workers' neighborhoods. Though Dracut has no formal historic town center, three areas have structures that are worthy of preservation.: 1) the intersection of Bridge Street and Arlington Street in Dracut Center; 2) the intersection of Mammoth Road and Nashua Road near the State Forest, and 3) Collinsville industrial area at the intersection of Mammoth Road and Lakeview Avenue in Collinsville. Dracut's mill buildings in Collinsville and Navy Yard, though not necessarily architecturally unique or distinctive, nevertheless reflect the industrial era of Dracut and should be retained with new uses, if possible.

Bridge and Arlington Streets/Dracut Center
This area includes the town's civic center which hosts the Colonial Revival style public buildings of Town Hall, library, grange hall, and offices as well as an exceptional Italianate style farmhouse.

Mammoth Road and Old Nashua Road/State Forest area
Residences dominate this area with an early 18th century Cape style house, a late 18th century central chimney house, a mid 18th century Italianate farmhouse (the Osgood House), and a vernacular Greek Revival period farmhouse.

Mammoth and Lakeview Avenue/Collinsville Industrial Area
This district contains the Merrimack Woolen Mills building, Collins Woolen Company buildings, 45 2-story tenements and a school.

(A map of Town of Dracut Historical Resources with a legend of historical properties was prepared by NMCOG in 1996 for the *Dracut Open Space and Recreation Plan* and is hereby incorporated – see Figure 5-1.)

Restored and Preserved Properties

Harmony Hall

In 1994 the Dracut Historical Society obtained, through donation, St. Mary's Church Hall, also known as Harmony Hall for use as a Public Meeting Hall to provide the town with a large accessible public meeting space. The Society and Town successfully relocated the 4500 square foot building one mile down Lakeview Avenue to its new permanent location adjacent to the Dracut Historical Society Headquarters. Design for conversion to a meeting hall has been completed. Monies for conversion and construction have not yet been approved.

Historic Resource Protections

At present, there are no mechanisms that protect historic structures and sites in Dracut. None of the identified properties cited above or illustrated on the attached map of historic resources are listed on the National or State Register of Historic Places. In addition, there are few historic signs are plaques on historic properties or structures in town to identify them as such.

The Dracut Historical Society, a private club, maintains records and information with regard to these sites. However, applications and the required surveys of historic properties to support these applications, have not been prepared or submitted to list any properties on the federal or state register of historic places. Recently however, the Historical Society has applied for a grant so that they can properly document historic buildings and sites and then use this documentation to apply for listing on the State Register of Historic Places.

(For a brief overview of the federal, state and local protections available, see Appendix 5-2)

5.2 HISTORIC & CULTURAL GOALS

1. Identify and survey all of Dracut's historic and cultural resources.

2. Protect Dracut's historic and cultural resources, which are now largely unprotected. Consider the establishment of Local Historic Districts, with the consent of affected property owners, to protect historic properties and areas.

3. Increase public awareness of Dracut's historic and cultural resources, which now largely go unnoticed, by identifying those resources to the public.

5.3 HISTORIC & CULTURAL RECOMMENDATIONS

1. Support the Historic Commission in their efforts to identify, protect and educate about Dracut's historic and cultural resources.

2. Survey and identify Dracut's historic and cultural resources. The Town has applied to the State for a grant to do such a survey. Primary areas of focus should be Dracut Center and the Collinsville and Navy Yard industrial mill buildings.

3. Nominate certain identified historic sites to the federal and/or State Register of Historic Places.

4. Consider the establishment of one or more local historic districts which would provide greater protections than federal or state designations. Such local districts may include: Dracut Center at Bridge and Arlington Streets; and, the Collinsville mill building district near the intersection of Mammoth Road and Lakeview Avenue.

5. Prepare historic signage and markers to identify historic and cultural places to heighten public awareness of these resources.

6. Prepare educational literature about Dracut's historic and cultural places to expand public awareness of these resources.

Appendix 5-1
A Brief History Of Dracut

(Derived from the history included in the 1996 Dracut Open Space and Recreation Plan)

Dracut was first permanently settled by Edward Colburn in 1669 on land bought from Thomas Henchman and previously owned by Richard Shatswell and before him John Evered Webb.. Webb had acquired interest in what was known as "Drawcutt upon Merrimack" from a 1659 Military Grant which had allotted Webb and three other men 1,100 acres of land. Periodic Indian attacks through King Philip's War in 1674, primarily by the Mohawks and Wampanoags kept many settlers away from Dracut. Over the following years, these tribes moved northward into Canada, opening the way for new families to join the small settlement north of the river. Dracut subsequently grew into a community of homesteads and farms.

Dracut was granted incorporation from its "mother town" of Chelmsford in 1701 where all settlers had voted, paid taxes and worshiped until then. Its independence was the result of growing agricultural and commodities based economy. Important to the development of Dracut's economy were the river ferries that facilitated the crossing of the Merrimack and the movement of goods to and from the Boston area market.

In the second half of the 18th century a road network developed as the stagecoach replaced more antiquated means of transportation. This change consequently led to more development as a network of inns and taverns, such as the Blood/Durkee House, were built as places of shelter and refreshment for travelers. The loss of almost one-half of Dracut's land to New Hampshire and Dunstable in 1741 and 1755 respectively did little to affect Dracut's agricultural economy. By 1763 there were mills in operation for fulling and dressing cloth and paper. To aid this growing industrial base, the Middlesex Merrimack (Pawtucket) Bridge was built in 1762 as the first of five bridges that were to connect the town to the south shore of the Merrimack River.

The opening of the Middlesex Canal in 1809 and the Middlesex Turnpike in 1811 strengthened the growth of the mills in the Collinsville and Navy Yard sections of Dracut. Both these transportation corridors served as vital links to Boston to transport goods and materials to and from Lowell., the growing center of the region's economy. The Merrimack River provided Dracut with strategic connections to other local and regional economies through steamboats that began operating on the river by 1819. By 1826, in tandem with the incorporation of the Town of Lowell, the Central Bridge was constructed, improving access to that burgeoning mill town. The Boston and Lowell area economies were brought even closer together with the opening of the Boston and Lowell Railroad in 1835.

By the mid 1800s, the character and economy of Dracut shifted as the industrial metropolis of Lowell established itself as the region's primary engine. Although Dracut maintained its agricultural based activities, most manufacturing based activities occurred in Lowell. It was at this time that certain sections of Dracut, such as Centralville and Pawtucketville, grew into residential areas for Lowell mill workers. Due to these areas proximity to Lowell on the north shore of the Merrimack, they were annexed by Lowell in 1872 and 1879 respectively. The construction of an electric railway system in Dracut near the turn of the century only accelerated the exodus of the working class to Lowell for the promise of greater economic opportunity there.

At the beginning of the twentieth century, Dracut rebounded and was reborn as a resort town. In

1908, Harry Kittredge built the Lakeview Park summer resort on Mascuppic Lake that popularized Dracut as a resort destination. For more than two decades from spring until fall, the park was a mecca for summer vacationers. In addition to the growth of this tourism trade, small manufacturing based activities continued in some of the old mills, but on a much lesser scale than before. Farms continued to dot the eastern portion of Dracut which remained largely undeveloped.

As the use of the automobile grew, roadway improvements continued to allow the dispersion of Dracut's working class. By the 1960s major highways such as Routes 93, 495 and 3 had been constructed through neighboring towns providing access to other employment centers.. This reinforced the development of Dracut as a bedroom community in support of outside employment centers such as Nashua, Lowell, the Route 128 employment belt, and the Boston area itself.

Today, Dracut is a growing suburban community of approximately 25,000 residents. With the majority of its residents working outside of town, it is anticipated that Dracut will continue to develop in this manner in the coming decades.

Appendix 5-2
Protecting Historic Resources

Although Dracut possesses a number of historic buildings, for the most part they are not formally protected. Neither have historic areas been protected by designation as historic districts. Should Dracut wish to explore the establishment of historic districts in the future, below is described the nature of historic districts and the process of establishing them. Historic Districts may be established at the federal, state or local levels. Each provides varying degrees of protection. Local Historic Districts can provide the greatest protections to historic properties. National Register properties and State Register properties provide more limited protections. Privately deeded restrictions or easements can provide the greatest protections, but must be either privately donated or directly purchased.

Local Historic Preservation Programs & Districts
The Massachusetts Historical Commission (MHC) was established in 1963 to identify, evaluate and protect important historical and archaeological assets of the Commonwealth. The MHC is the office of the State Historic Preservation Officer and the office of State Archaeologist. The MHC works closely with local preservation groups and, if one has been established, the Local Historic Commission (LHC), which must be established by vote of the town.

As the State Historic Preservation Office, the MHC acts as liaison to federal, state, and local development agencies. The MHC is authorized by state and federal law, through its environmental review processes, to review and comment on certain state and federally licensed or funded projects that have an impact on historic properties.

Local Historical Commission (LHC)
Once established, the LHC is the municipal agency responsible for ensuring that preservation concerns are considered in community planning and development decisions. They serve as local preservation advocates and as an important resource of information about their communities cultural resources and preservation activities.

Local Historic Districts (LHD)
An LHD is established and administered by a community to protect the distinctive characteristics of important areas and to encourage new construction that is compatible with the historic setting. A District Study Committee is appointed to conduct a survey of the area and to prepare a preliminary report for state and local review. A final report is then submitted to the local governing body for approval of the local ordinance. Once the LHD is established, a Local Historic District Commission (LHDC) is appointed to review all applications for exterior changes to buildings within the district.

This design review process assures that proposed changes to properties will not destroy the district's character. Review criteria, which may be either quite restrictive or quite flexible, are determined locally by each town and city and vary considerably for each local district. Therefore, it remains the decision of the town as to the degree of discretion given to the LHDC to review proposed exterior property changes.

(Continued)

(Appendix 5-2 continued)

National Register of Historic Places

The National Register of Historic Places (NRHP) documents and record the nation's significant buildings, sites, and objects as well as districts worthy of protection. Based on local and state surveys, nominations to the HRHP are generally initiated by the Local Historical Commission, which works with MHC staff to prepare the nomination form. Nominations are then reviewed by the MHC State Review Board at a public meeting and forwarded to the Keeper of the National Register for approval.

Listing on the NRHP provides a basis for making informed planning and development decisions. HRHP status places no constraints on what owners may do with their properties when using private funds. While the HRHP is not a design review program, it does provide limited protection from state and federal actions, as well as eligibility for matching state and federal restoration and research grants and certain federal tax benefits for certified rehabilitation projects.

State Register of Historic Places

The State Register of Historic Places (SRHP) was created to serve as a master list of designated historic properties in Massachusetts and to provide an added measure of protection to these properties. Properties are included on this Register if they are: listed or determined to be determined eligible for listing in the NRHP; local historic districts; local, state and national landmarks, state archaeological landmarks; or properties with preservation restrictions. The State Register serves as a guide for project developers to determine whether a state funded or licensed project will affect any historic properties. The State Register review process is modeled closely after the federal review process and ensures that State Registered properties will not inadvertently be harmed by activities supported by State agencies.

Preservation Restrictions

Preservation Restrictions protect historic properties from changes that may be inappropriate. A preservation restriction (easement) on a property restricts present and future owners from altering a specified portion of a building, structure or site. A restriction can run for several years or in perpetuity and may be included as part of a property deed. Preservation restrictions can be donated or purchased by a government body, or private preservation organization and are enforced by the holder of the restriction. Charitable donations of easements on historical buildings or archaeological sites may qualify for federal income tax deductions.

Section 6:
PUBLIC FACILITIES

Section 6: PUBLIC FACILITIES

6.1 INTRODUCTION

After an extended period of deferred capital construction and maintenance together with increasing population growth, Dracut is now in the midst of a major reconstruction program of its public buildings, schools and recreational facilities to remedy deteriorated conditions, space shortages, and overcrowded schools. For example, voters have recently approved the construction of two new staffed fire stations to provide quicker response times to emergency calls. The proposed new Veterans Memorial Park on Broadway at the former Lachut property will provide a major expansion of much needed recreational fields and opportunities. There are plans to construct a new Junior High School; and, once completed, to convert the current Junior High School to a much needed Upper Elementary School to relieve the severe overcrowding at the elementary school grade levels. There are also plans to construct a much needed expansion and renovation of the Moses Greeley Parker Public Library. Additionally, a Police Department Facility Feasibility Study is underway; there have been proposals to expand the Senior Citizens Drop- In Center; and there has been preliminary discussion of expanding the existing Town Hall or constructing a new Town Hall to remedy current space deficiencies and the administrative and communications inefficiencies of operating an Annex.

In spite of this significant and ambitious construction program to remedy past deficiencies and address current needs, certain *long term* needs will require still additional efforts. For instance, the school expansion program now planned and underway is only estimated to meet elementary school population growth demands until the middle or latter part of the next decade. Beyond that time frame, yet additional school construction will likely be required. If these longer term school facility needs are not addressed, other remedies such as school redistricting or the continued use of portable classrooms may eventually be required.

If and when the construction program cited above is fully realized, the Town will also have newly available to it several surplused properties as well - the Navy Yard and Kenwood Fire Stations, the old firehouse adjacent to Town Hall, possibly the Town Hall Annex, and the Sewer and Parks Department garages on Lakewood. Some of these surplused properties may be regarded as an opportunity to provide additional services to the community that are now lacking.

Capital facility and operations planning will not end with the completion of this current construction program, however. Capital planning is an ongoing effort since demands for town services continuously change - due either to population growth, higher expectations for services by the town's residents, or both. Therefore the Town, through its Capital Planning Committee, annually prepares and updates a 5-Year Capital Plan (or, Capital Improvement Program) to anticipate, schedule, and budget foreseeable facility needs. This Capital Plan is formulated in consultation with, and at the request of the various Department Heads. The process of anticipating capital needs in Dracut now appears to be exemplary and the annual 5-Year Capital Plan is the single most comprehensive vehicle to forecast and document the Town's facilities needs and priorities within fiscal constraints.

Additionally, the Permanent Building Committee, established by Town Charter in 1985, oversees all phases of municipal construction. The Permanent Building Committee is responsible for

approving building plans, expending funds appropriated for design and construction projects at Town Meeting, and overseeing construction efforts.

6.2 OVERVIEW OF EXISTING CONDITIONS / PROJECTED NEEDS

General Municipal Facilities

A complete review of all existing public facilities, schools and active recreational properties was undertaken as well as a review of their current conditions, adequacy to serve their various purposes, and current expansion and improvement plans. The following Inventory documents these reviews and analyses.

Town Hall and Town Hall Annex

The Town Hall, converted from the old District 7 Elementary School constructed in 1893 houses most of the Town's administrative offices. Many offices within Town Hall have a shortage of space, however. For example, there is little space for public meeting rooms to host various Town Boards and Committee meetings. As a result, many public committee meetings are held at various schools and other scattered sites throughout town. Additionally, because of the overall shortage of space, some town offices are located at the Annex, which is itself in poor condition and largely inaccessible to those with mobility disabilities. As a result, communications between the various departments and town administration is not optimal. Because the three story building has no elevator, much of the facility is not accessible to the disabled. Parking is located east of Town Hall in a lot that is located down an embankment from the Town Hall itself.

Because of these various shortcomings, there has been discussion of eventually expanding Town Hall or constructing an entirely new facility that perhaps could include all municipal functions now located at both Town Hall and the Annex (except, perhaps, the Building Department and Engineering Department which may better be housed at an expanded DPW headquarters). Such a new Town Hall could become the centerpiece of a new town center campus at Routes 38 and 113 which would include municipal buildings, the Grange Meeting Hall, the Old Yellow Meeting House, expanded Library, church, shared municipal parking, and an outdoor public "Green" or "Common", together, perhaps, with retail shops.

Moses Greeley Parker Public Library

28 Arlington Street

The Parker Public Library on Arlington Street, built in 1922 and expanded in 1978, is adjacent to the Town Hall. The older portion of the library is a handsome structure but is in very poor condition. The existing library is presently overcrowded. However, circulation is increasing at a rate of approximately 8% annually. As a result, the existing Library is no longer adequate to serve Dracut's growing population. The original 1922 portion of the Library, whose lower level has had extensive water damage in the past, is now relatively unused except for storage, occasional public meetings, and occasional events.

A feasibility study was undertaken to examine future needs, define an expansion program, and assess the feasibility of an expansion to and renovation of the historic 1922 building. Based upon that study, designs for such an expansion have recently been prepared. Those schematic designs call for a new expansion surrounding the historic 1922 portion of the building for a total area of approximately 33,000 square feet. To accommodate this expansion, the 1978 addition will be removed. To provide adequate parking space for the expanded facility, it is proposed that the

obsolete firehouse adjacent to the Library be removed once new Fire Stations are constructed elsewhere to accommodate the fire apparatus now stored in this old firehouse. Additional parking may be also be required by negotiated arrangement for overflow parking with the adjacent Church's parking lot.

Senior Citizens Drop-In Center / Council on Aging (COA)
The Senior Center / Drop-In Center includes a meeting hall, private meeting rooms/offices, kitchen and offices for the Council on Aging. An expansion of the Senior Center is currently proposed to provide expanded programming and services. These expansion plans have recently been funded with a CDBG grant to the Town. The expansion would include: an addition to the main hall, renovations to accommodate medical appointments in a more private manner, improved access, elevator accessibility to the basement to allow better access to game rooms, craft areas and exercise areas, and a Country Store/Gift Shop to increase revenues to support the Center.

DPW Facilities
The DPW currently operates from three separate facilities: the DPW / Highway Department Garage (Greg Dillon Municipal Services Center) on Hildreth Street at the old landfill site, the Park / Tree Department facility on Lakeview, and the Sewer Department facility, also on Lakeview. The DPW now has a total of 25 employees in the garages and two employees in the office at the Hildreth Street site; and, the staff is growing. Though all vehicles can now be garaged indoors, growth will require additional garage bays as well. There is also need for additional office space. There have been discussions about consolidating these three separate facilities in order to better utilize manpower, avoid equipment duplication, and provide more convenience to the public interacting with the DPW. If these separate facilities were to be consolidated, the most logical location would likely be the Hildreth Street property. Additionally, there have been suggestions to relocate the Engineering Department and Building Department, now both housed at the Town Hall Annex to an expanded Hildreth Street DPW facility to provide a convenient "one-stop" center for all DPW / permitting / building construction issues. To examine whether this consolidation is feasible and to determine the type of additional space needed, a Feasibility Study is required.

Public Safety Facilities

Police Station
1600 Lakeview Avenue
Community Policing Office
Town Hall Annex; 11 Spring Park Avenue
Dracut's Police Station is located on Lakeview Avenue between the Junior High School and the Dracut Historical Society building. The current building has been judged too small to meet departmental needs, is not adequate to meet future needs, and is not compliant with building codes, accessibility regulations, and correctional safety standards in the lock-up area. Therefore, funding has been obtained to conduct a Feasibility Study to assess space needs and the viability of providing needed additions. This Feasibility Study is now underway and is expected to be completed in early 1999.

Expansion of the existing Police Station at its present site is one option that is being assessed. Construction of an entirely new Station at or near the present site is also being evaluated, perhaps

located on presently owned School Department property at the front of the existing Police Station.
A community policing office is located in the Town Hall Annex. If a new or expanded Police Station is constructed, this Community policing office would relocate to the new facility.

Fire Department Facilities
The Fire Department now includes three existing stations - the staffed Navy Yard Station (which serves as headquarters) on Pleasant Street, the staffed Collinsville Station in the west end, and the unstaffed Kenwood Station on Kearsage and Stuart Avenue which serves the eastern side of Dracut. Additionally, the old Fire Station adjacent to Town Hall is used to store fire fighting apparatus as well as serve as host to the Town's private ambulance service. The Fire Department consists of a full-time staff supplemented by volunteer firefighters. The staff consists of a Chief, two Deputies, and over 30 firefighters.

At present, emergency response coverage of the town is considered unbalanced in that it may take as long as eight minutes for on-call volunteer firefighters to respond to alarms on the east side of Dracut. Under ideal conditions, response times should not exceed four minutes. To respond to this unbalanced coverage, and anticipated housing and population growth in the eastern end of town, land was acquired in 1985 at the corner of Jones Avenue and Broadway Road for a new staffed East Dracut Station. Funds have now been approved to reorganize fire station facilities and construct a new Central Fire Station as well as the new East Dracut Fire Station. The new $1.5 million six-bay Central Fire Station is proposed on Pleasant Street across from Monahan Field on Town-owned land (the Stay -n- Play Playground and parking lot) to replace the Navy Yard Station. When these two new stations are built and placed in operation, the old on-call Kenwood Station, Navy Yard Station, and old fire station adjacent to Town Hall will be closed.

The new East Station and Central Station will both be staffed facilities. This decision to operate all stations as staffed facilities to diminish response times represents a shift in operational policy that recognizes Dracut's growing population, trend toward increasing urbanization, and potential increase in response times due to increasing traffic congestion.

Public Schools

Dracut's public school facilities include a High School, Junior High School, four elementary schools, and School Administrative Offices. The heart of the school system is at the 82 acre "academic campus" on Lakeview Avenue that includes the Dracut High School (grades 9-12), the Englesby Junior High School (grades 7-8), the Middle Elementary School (grades PK-6) and a variety of play fields. The other three elementary schools include the Parker Avenue Elementary School (K-6), the Joseph A. Campbell Elementary School (PK-6), and the Greenmont Avenue Elementary School (K-6).

The Greenmont Avenue and Parker Avenue Elementary Schools were constructed in the 1920s. These two facilities in particular are obsolete and have little room for expansion. Additionally, because of the limited size of their classrooms and the restricted size of their properties, they do not meet current state-mandated space standards and therefore are not be eligible for state school funding for renovation or expansion. *[See "Appendix 6-1: Inventory of Public Facilities" for more detailed descriptions of existing schools. See Figure 6-1 for locations of all municipal facilities, including schools.]*

Over the years, due to population growth, the need to accommodate new mandated and desired educational and special needs programs, and the lack of additional new construction, Dracut's schools had become overcrowded. Therefore, in 1995, Mt. Vernon Group Inc. was commissioned to prepare a *Feasibility Demographic Study for the Dracut Public Schools (Pre-K through 8)* in behalf of the Town of Dracut and the Permanent Building Committee to address these overcrowded conditions. The Study examined population projections, provided a physical plant analysis, identified needs and shortcomings (such as overcrowded classes), and suggested options as solutions for the then overcrowded junior high school and overcrowded elementary school facilities. [That overcrowding remains today at the elementary school levels is clearly evidenced by the many portable classrooms in use at the Middle School, Campbell Elementary School, Parker Elementary School, and Greenmont Avenue Elementary School. In fact, in 1998, 469 of Dracut's 2,446 elementary students, or almost 20% of the entire enrollment, were housed in modular portable classrooms.] This 1995 Study provided the basis for proposals in 1996 – 1997 to construct a new Junior High School and convert the existing High School to a new Elementary School.

In 1998 the School Department undertook a comprehensive reevaluation of projected school enrollments, grade organizations, and facility capacities to determine future facility needs. This reevaluation, and the recommendations based upon it, were recently approved by the School Committee at the end of 1998 and are discussed later in this section.

School Enrollment History / Projections

As illustrated in *Table 6-1* below, from the decade of 1983 until 1992, enrollments plateaued at approximately 3,600 to 3,700 students. Further analysis indicates, however, that enrollments were increasing in grades PK-6 but decreasing in grades 7-12 to sustain an overall balance.

Table 6-1
Historic Enrollments: 1983-1992

Grades	*1983*	*1992*	*Change*	*Percent*
K-6	1,883	2,224	361	19 %
7-8	732	587	-145	-20 %
9-12	1,055	888	-167	-16 %
Total	3,670	3,719	49	1 %

Source: Mt. Vernon Group Inc. 1995

The population of Dracut increased from 21,249 in 1980 to 25,594 in 1990 and continued to increase to 1994 to a population of 26,645 (MA Dept. of Revenue estimate). With the increase in population also came an increase in enrollments. *Table 6-2* which follows illustrates the progression among the grades between 1990 and 1994.

Table 6-2
Recent Historical Enrollments: 1990-1994

Grades	*1990*	*1994*	*Change*	*Percent Change*
PK-6	*2,161*	*2,290*	*229*	*11 %*
7-8	*599*	*702*	*104*	*17 %*
9-12	*853*	*882*	*29*	*3 %*
Total	3,613	3,975	362	10 %

Source : Mt. Vernon Group, Inc. 1995

[Since the enrollments in *Table 6-2* were recorded, enrollments have continued to increase. In 1998, for example, there were 2,534 students enrolled in grades PK through 6, a 10.7% increase over the 1990-1994 four year period; there were 647 students enrolled in grades 7-8, a 7.8% decline since 1994; and, there were 966 students enrolled in grades 9-12, a 9.5% increase since 1994. Total 1998 Dracut PK-12 enrollment is 4,147 students, an increase of 4.3% above the total of 3,975 students enrolled in 1994. Even more recent data indicate that there was a dramatic increase in elementary school enrollments from the 1997/1998 to the 1998/1999 school year.]

Table 6-3 below illustrates the Mount Vernon Group Inc.'s 1995 enrollment projections until 2004 which predict facilities needs in the following years. (These enrollment projections estimated further growth, but did not include a need to eliminate current crowding of facilities, use of other rooms for classrooms, and improvements needed for other educational programs as they existed at the time of the Study):

Table 6-3
Future Enrollment Projections: 1994-2004 (as estimated in 1995)

Grades	*1994*	*1999*	*2004*	*Change('94-'04)*	*Percent Change*
PK-6	2,390	2,785	2,860	470	19.7 %
7-8	703	696	833	130	18.5 %
9-12	882	1,022	1,194	312	35.4 %
Total	3,975	4,502	4,887	912	23.0 %

Source: Mt. Vernon Group Inc. 1995

Currently, the School Department is using the following updated enrollment projections, estimated in 1998, to anticipate future classroom and facility needs:

Table 6-4
Future Enrollment Projections: 1998-2008

Grades	*1998/9*	*2003/4*	*2008/9*	*Change('98-'08)*	*Percent Change*
K-6*	2,462	2,479	N/A	N/A	N/A
7-8	647	754	723	76	11.7%
9-12	966	1,022	1,117	151	15.6 %
Total	4,075**	4,255			

Source: New England School Development Council, Marlborough, MA, 1998
* Does not include pre-school
** 4,147, *including* pre-school

Comparing *Tables 6-3* and *6-4*, it can be seen that current 1998/9 PK-12 enrollments of 4,147 students have not reached the 1999 PK-12 enrollment projection of 4,502 students forecast by the Mt. Vernon Group in 1995. Furthermore, the recent New England School Development Council enrollment estimates for 2003/4 are also less than the 2004 enrollment projections prepared earlier by the Mt. Vernon Group.

Current Facility Capacity Improvement Program
Within the past several years a $10 million 29,000 square foot expansion was added to the High School. With the completion of this recent expansion, the High School's capacity is now approximately 1,100 students, which should accommodate projected enrollments until approximately the year 2004/5 or 2008/9, depending upon which forecasts are used. However, the Junior High School is now either approaching or is at capacity and all of Dracut's elementary schools remain severely overcrowded with current enrollments exceeding their current capacities. As a result, portable classrooms have been used at the elementary schools to meet this capacity shortfall for some time now and additional portable classrooms were recently opened at the Greenmont Avenue elementary School.

The capacity of the existing Junior High School is 542 students. In 1995 the enrollment was 703 students - 161 students above reasonable capacity. Because of this capacity deficiency and existing overcrowded conditions, Dracut authorized that a new Junior High School be programmed and designed to accommodate 1000 students which will exceed expected junior high school enrollment projections for the year 2004 and even possibly the year 2008/9. This new Junior High School, for grades 7 and 8, is to be constructed on Lakeview Avenue at the "academic campus" when State funds are secured.

When the new Junior High School is constructed, plans call for the existing Junior High School to be converted to a new upper elementary school for grades 5 and 6. Both the new Junior High School and the converted Upper Elementary School are to be completed by the year 2001. This construction program appears the most viable option to both reduce overcrowding as well as increase capacity since expansion of some of the older elementary schools does not appear to be viable or eligible for State funding. The conversion of the existing Junior High School to an Upper Elementary School for grades 5 and 6 will: 1) dramatically relieve current overcrowding in the elementary school grades, 2) convert all the Town's other existing elementary schools into kindergarten to grade 4 facilities, 3) retain the other grade schools as neighborhood schools, 4) avoid or delay the need to realign school districts, and 5) reduce enrollments at other grade schools, thereby allowing a number of leased portable classrooms to be retired. When renovated,

the new Upper Elementary School will have 32 classrooms for up to 24 students each, for a total facility capacity of 768 students.

With the addition of a new Upper Elementary School of the size described here, Dracut's combined elementary grade facility capacity would be increased to 2,617-2,917 students. When this projected facility capacity number is compared to the projected elementary grade school enrollment of 2,860 students in the year 2004 (Mt. Vernon Group), or 2,479 students in the year 2003/4 (New England School Development Council), it can be seen that the addition of this planned Upper Elementary School will satisfy capacity until approximately that year. Even so, undersized and outdated classrooms, which no longer meet state standards, will still remain at the several other older elementary schools.

Future School Facility Needs Beyond the Next Decade

All of the above enrollment projections and facility construction programs appear to meet school capacity needs only into the middle or latter part of the next decade. Beyond that timeframe, still greater capacity must be provided to meet Dracut's expected growth, particularly at the growing elementary grades level. To provide an even longer term perspective on this issue, our consultant team projected increased numbers of school children beyond current enrollments for several differing growth scenarios at full build-out capacity (a 30 to 50 year + time frame). Under present zoning, for instance, if the Town were to develop to the full capacity that zoning now allows, an *additional* 6,494 children will be growing up in the town beyond the current school aged population. Even under the Guide Plan (Composite Plan) build-out scenario, an additional 3,760 school aged children are expected. Unless yet additional permanent school facility capacity is planned for, and the sites for them identified and obtained, other remedies to resolve school overcrowding may still need to be employed in the future – including the possibility of school district realignments.

Active Recreational Facilities and Playgrounds

In Dracut there are approximately 640 acres of land in use for active and passive recreational uses. Nearly 85% of this land is owned by the State DEM as the State Forest (543 acres), which primarily serves passive recreational needs. School associated facilities account for 12% (77 acres) and includes total land area for recreational facilities and building sites. The remaining 3% (18 acres) of recreation land is owned by the Town and consists of playing fields and parks which are managed and maintained by the Recreation and Parks Departments.

Recreation facilities are evenly distributed around town with the noticeable exception that few if any recreational facilities exist in East Dracut, which is sparsely populated. The other four neighborhoods have issues with the limited *types* of recreational facilities available rather than a shortage of recreational land. There is overall dissatisfaction with the availability of *adult* recreation areas since many ball fields are sized for Little League, there are few tennis courts, and there is lack of a golf course. New tennis courts planned at the new Junior High School, if funds can be identified to pay for their construction, will help remedy some of these shortages.

[NMCOG prepared an extensive inventory and analysis of Dracut's recreational needs in the *1996 Open Space and Recreation Plan.* Much of the description and analysis which follows is drawn from and summarizes relevant portions from that Plan.]

Distribution of Recreational Facilities by Neighborhood

Following is a description of available recreational opportunities as distributed by neighborhood:

Dracut Center Recreational Venues
Dracut Center has the most recreational areas and variety with a tot lot, playing fields, and a passive recreational area (Hovey Plaza Playground, Greenmont School, Stay-n-Play Playground, Monahan Memorial Park and Varnum Park).

Collinsville Neighborhood Recreational Venues
The Collinsville neighborhood has two beach areas, and playing fields (Mascuppic Beach, Long Pond Park and Carrick Ball Fields).

Navy Yard Neighborhood Recreational Venues
The Navy Yard neighborhood includes a variety of playing fields (High/Middle School, Parker School and Public Works Field Complex).

Kenwood Neighborhood Recreational Venues
The Kenwood neighborhood, in the eastern part of the town, has the fewest number of recreational areas (Campbell School and the former Intervale Park).

Recently Acquired Lands for Recreation
In 1995 Dracut acquired two significant parcels of land with the intent to construct new passive and active recreational facilities at each location. These acquisitions should help satisfy most of the demand resulting from a 41% increase in population from 1970 to 1990 and an expected population increase over the next twenty years.

*Veterans Memorial Park (*The *Lachut Property)*
The former Lachut property on Route 113 (Broadway Road near Arlington) was acquired to provide new recreational opportunities to serve the Dracut Center area and the town at large. The property, 18.7 acres in size, had been previously approved for a residential subdivision. Possible recreational development here may include a regulation soccer fields (2), baseball and softball fields (2), picnic areas, walking areas and parking. It will also include a formal memorial courtyard honoring the men and women veterans of Dracut. Due to wetlands on the property, the parcel size is more restricted than it nominally appears to be. As a result, some play fields will not be regulation sized. Therefore, recreational opportunities for adults may be limited. This site is also being considered for the construction of a new tot lot and playground. Such a playground facility will become a necessity if the existing Stay-n-Play Playground is lost by the construction of the new planned Central Fire Station at that site. Town Meeting has authorized up to $330,000 for improvements to the Lachut property in the form of loans to be paid back by private fund raising efforts, donations, and possibly use of Force Accounts . An application will be filed by the Town for an Urban Self Help Grant from the Division of Conservation Services (EOEA) to help reimburse the Town's local expenditure.

The Rifle Range
The old Rifle Range was also recently acquired for the purpose of creating recreational opportunities as well as conservation land.

Management of Recreational & Open Space Facilities
Three Boards are involved in the provision of recreational and open space. The Recreation Department takes the lead and is responsible for providing recreational opportunities. The Conservation Commission is responsible for the protection of the natural environment. The Planning Board is responsible for guiding growth and development and playing a supporting role

by helping to acquire and protect open space. In the past, these three Boards have worked well together. The Recreation Department and the Conservation Commission have existed as a merged department under the management of one director. Recently, cooperative efforts have resulted in the acquisition of the Rifle Range and Lachut Property.

The management of recreation areas in Dracut is divided among three entities; the Recreation Department programs and coordinates field usage and maintenance efforts at most Town-owned sites; the School Department coordinates maintenance at school associated facilities; and the Conservation Commission coordinates maintenance at conservation land. The Parks Department/DPW directly cares for all Town-owned parks and conservation land and the School Department directly maintains school associated properties. The Parks Department/DPW annual maintenance budget appears to be woefully inadequate to properly maintain the many recreational properties they are responsible for.

Additionally, private organizations that use or lease facilities from the Town (such as the Dracut Baseball Association at Hovey Plaza, the Dracut Softball Association at Monahan Field, and the Long Pond Park Improvement Association at Long Pond Park) contribute significantly to maintenance efforts.

Future Recreational Issues

- *East Dracut* East Dracut remains under-served by public recreational facilities or open spaces. The Town may wish to acquire land for recreational purposes for future use in this area while land still remains relatively inexpensive here. Perhaps recreation corridors should be acquired while the opportunity still exists.

- *Adult Recreational Opportunities* There remains the need to expand adult recreational facilities. If new tennis courts are funded and then constructed at the new Junior High School, this will help alleviate the adult recreation venues shortage.

- *Swimming Beaches* At present there exists a free town-owned beach at Mascuppic Lake in the southwest corner of town owned by the Conservation Commission . However, due to the adjacent roadway configuration and prevailing winds that blow debris into the area, the beach is not particularly clean and not well used. Improvements are required for this area to make it attractive to town residents. Perhaps additional sites located on ponds or lakes should be acquired by the Town as well when they become available for sale by private property owners.

- *Youth Center* There has been discussion for need of a Youth Center, particularly in the center of town. Ideally, such a center would be located adjacent to outdoor recreational play fields. The Lachut property, when developed for recreational purposes, may be an appropriate site to consider as may be certain surplused properties, such as the Navy Yard Fire Station.

- *Skateboarding / Rollerblading Area* There has also been some discussion about providing a rollerblading/skateboarding facility in town that could be located at a site that would not disturb adjacent residential properties. In the past, a privately sponsored facility was discussed for a site on Lakeview Avenue. If the Town can attract a privately developed and funded recreational facility, it should do so.

Town Cemeteries

Dracut owns and maintains seven town cemeteries. Five of these are located in Dracut. Two are located in Lowell. On average, the Cemetery Commission has overseen approximately 10-25 burials per year in recent years. Those cemeteries located in Dracut include: the Oakland Cemetery on Mammoth Avenue, the New Boston Cemetery on Hildreth, the Richardson Cemetery on Route 113, the Bailey Cemetery on Route 113, and the Varnum Cemetery on Parker Road. The Lowell cemeteries include the Hildreth Street Cemetery and the Hamblett Cemetery on Jordan Street.

The burial capacity of Dracut's cemeteries had approached their upper limits in recent years. Burial plots at the Richardson Cemetery and the Varnum Cemetery have sold out. Recently, however, 4,100 square feet of land adjacent to the New Boston Cemetery has been donated for cemetery land. This additional property will provide approximately 110 new single burial sites. At the Oakland Cemetery, 1.5 acres of adjacent Town-owned land was transferred to the Cemetery Commission. This additional acreage will provide 1,500 new burial sites when site development / construction is completed in the spring of 1999. Of these 1500 additional sites, 500 have already been sold.

As a result of these recent land donations and transfers, approximately 1,610 new burial sites will be available. At the current burial rate of approximately 25 per year, the Town's cemeteries should hopefully have adequate capacity for the next 50 to 65 years.

6.3 PUBLIC FACILITIES GOALS

Based on the broad review of existing conditions described above and in more detail in Appendix 6, and public comments gathered during the preparation of the Plan, the following Goals for Facilities and Service Improvements will guide the Plan's Recommendations and Implementation Strategies.

1. **Municipal Buildings** Modernize and improve Dracut's municipal buildings and facilities (i.e. Library, Town Hall, many of which have suffered from deferred maintenance, benign neglect, and lack of necessary expansions over the years to meet Dracut's growing population and expectations for better municipal services. Many of Dracut's facilities are old, in poor condition, insufficient in size to meet their intended purposes, and, in many instances, do not meet current building code and accessibility standards for the disabled. They should be modernized to provide citizens and the staff that work within them with sufficient accommodations to efficiently deliver services that the Town should provide.

2. **Public Safety Facilities** Expand and improve public safety and emergency coverage and services. As the Town has grown, the provision of public safety services (police, fire protection, and EMS services) should be expanded to provide adequate geographical and emergency response coverage of all neighborhoods throughout Town.

As a part of these expanded services, provide staffed rather than on-call fire stations geographically distributed throughout the town to insure adequate response times in emergencies.

As a corollary, increased annual operating budgets (as well as capital) will be required to hire additional public safety personnel to staff these new staffed facilities.

Provide for the expansion of the Police Station to remedy current space shortages, safety concerns, and building code deficiencies; provide for anticipated future needs; and modernize communications and operations.

Assist privately-operated EMS / ambulance service to find replacement space in the Town when the current town-owned fire station in the center of town (which now hosts this EMS service) is demolished to make room for the expanded Library's parking lot. Retaining these EMS services in the town will insure quick response times to emergency calls.

Based upon a need expressed to provide better water safety / rescue services that can respond quickly, provide or construct a boat landing on the Merrimack River to provide a place for putting safety and rescue boats into the water.

3. **School Facilities** Provide adequate school facilities for Dracut's expanding school-aged population. Currently, many of Dracut's schools are outdated, have a severe shortage of space, and do not meet current standards. Portable classrooms are now used throughout the elementary school grades and are clear evidence of the space shortages that now exist. Dracut should continue to expand and modernize its school facilities to better serve its children and youth as it has already aggressively begun to do.

In the mid to late 1990s, Dracut prepared an outline of a school expansion program to alleviate today's shortfalls and provide for tomorrow's enrollment projections. That expansion program will soon be underway. However, school enrollment projections indicate that the currently-conceived school expansion program will only accommodate projected enrollments until the middle or latter part of the next decade. Therefore, Dracut must look still further ahead and provide / acquire lands for yet further future expansions of its school facilities.

4. **Recreational Facilities** Provide expanded and improved active recreational facilities, including playgrounds, play fields, parks, and town beach areas, for all age groups - toddlers, children, adolescents, and adults. Recreational facilities should also be distributed throughout all of Dracut's neighborhoods. Dracut has many areas of open space and passive recreational enjoyment. However, there is presently insufficient active recreational play fields, courts and parks. Also, the present geographic distribution of active recreational venues are not properly distributed throughout the town to provide recreational opportunities for all neighborhoods equally. Dracut should continue to expand and improve its active recreational facilities as opportunities to acquire land become available. Dracut in recent years has already made ambitious land acquisitions for recreation use purposes. The challenge remaining will be to fund the development of these acquisitions into useable recreational fields and/ or seek private development, funding and operations of recreational facilities.

5. **Cemeteries** Provide for sufficient burial room at Town Cemeteries for those residents who may wish to use them. The Town has recently taken measures to expand its cemeteries so that they will hopefully be adequate to accommodate demand for the next 50 years. Nevertheless, the Town should continue to keep its eyes open for additional lands and acquire them for further cemetery expansions if the opportunities should arise.

6. **Long Range Capital Facility Planning** Continue Dracut's Permanent Building Committee and Capital Planning Committee process to provide an ongoing review and forecasting mechanism to identify and fund needed capital improvements and ongoing maintenance, repair and replacement needs.

7. **Federal and State Accessibility Improvements for the Disabled** Continue Dracut's ongoing program to make all municipal facilities compliant with federal and state accessibility requirements.

8. **Find Reuse Purposes for Surplused Municipal Facilities** Identify reuse options for soon-to- be -surplused municipal facilities (i.e. old Navy Yard Fire Station, the old Kenwood Fire Substation, and possibly the Town Hall Annex and Sewer and Parks Department garages) to provide new services to Dracut's citizens.

6.4 PUBLIC FACILITIES RECOMMENDATIONS

Based on the goals described above, the following recommendations outline specific improvement projects to be undertaken to accomplish these goals.

Municipal Facilities

1. Expand Town Hall or construct a new Town Hall entirely. Consolidate municipal functions now at the Annex into the expanded or new facility. Consider the creation of a "Government Center / Civic Campus" at Route 113 and Route 38 to form the nucleus of a "town center". Such a center may include the expanded Library, Town Hall, meeting space, a "Town Common", shared parking, a Post Office, the Church, and perhaps commercial shops. A detailed feasibility study should be commissioned to examine the opportunities.

2. Expand the Library to provided needed and desired services to Dracut's citizens.

3. Provide expanded parking for the Library and Town Hall. Demolish the old Fire Station adjacent to Town Hall which now houses private EMS services to provide room for this parking expansion. Perhaps parking arrangements for shared use can also be negotiated with the adjacent Church based upon differing time demands for parking.

4. Consolidate the Sewer and Parks Department garages on Lakeview Avenue into an expanded Hildreth St. DPW facility to provide better provision and consolidation of services and a "one-stop" service center for all DPW / permitting /engineering /and building construction issues in town.

5. Consider the expansion of the Senior Citizens' Drop-In Center on Mammoth Avenue.

6. Work with the Dracut Historical Society to renovate Harmony Hall for conversion to public meeting room space.

Public Safety Facilities

1. Implement the recommendations of the Police Department's facility expansion feasibility study now underway. If a new Police headquarters at the present site is recommended, then

perhaps School Department land may need to be transferred to the Town and Police Department for this purpose. If the Feasibility Study identifies an entirely new site for a new Police Station, that site may have to be acquired.

2. As is now planned, construct a new staffed Central Fire Station and new East Dracut Fire Substation to provide better emergency coverage to all neighborhoods. By implementing this construction program, there will be excellent geographic coverage and quick emergency call response times for all neighborhoods in town. As facilities are constructed, allow room for future expansion and the future construction of additional apparatus bays.

3. Continue to support a fully staffed Fire Department, and maintain the volunteer firefighter force to supplement the Department, in order to provide improved emergency response times.

4. Consider finding alternative space to rent to private ambulance / EMS services now located at the old fire station adjacent to Town Hall that will be demolished to provide expanded parking for the expanded Library. Possibly, the current Navy Yard Station, when it is replaced by the new Central Station, can be rented to private EMS / ambulance services to maintain these emergency services in town.

5. Identify a site and construct a boat landing /ramp on the Merrimack River to put safety and rescue boats into the river.

School Facilities

1. Construct a new Junior High School at the "Academic Campus" on Lakeview Avenue to accommodate the growing middle school aged student population. Consider increasing the current expansion program of approximately 1000 students to a greater number to meet capacity beyond the middle of the next decade. Alternatively, the Town should assure itself that the site for the new Junior High School is sufficient in size to accommodate a future addition between 2005-2010.

2. Renovate and convert the existing Junior High School into a new Upper Elementary School for grades 5 and 6 (once a new Junior High School is constructed) to alleviate existing space shortages at the elementary schools level. Yet additional capacity for elementary grades beyond the capacity provided in this conversion plan will still be necessary, however, for anticipated enrollment beyond the middle or latter part of the next decade.

3. Renovate certain other older elementary schools to bring them up to modern standards if State funding can be obtained. Eventually, however, construct a new Elementary School to accommodate projected enrollment increases. Surplus those existing elementary schools not eligible for State funding because of their obsolescent configuration or lack of adequate grounds to meet State funding eligibility criteria once the new elementary school is constructed. Reserve/ acquire lands for yet future school expansions or entirely new school facilities to accommodate projected school enrollments beyond the middle of the next decade.

Active Recreational Facilities

1. Fund and construct new play fields at the recently acquired Veterans Memorial Park (Lachut property). Seek private donations to help fund this effort.

2. Relocate the Stay-n-Play playground and tot lot facilities to either the other side of the street adjacent to Monahan Field, or, to Veterans Memorial Park when the existing Stay-n-Play playground is removed to provide a site for the new Central Fire Station.

3. Fund and construct new lighted tennis courts at the Junior High School to provide facilities for Dracut's adult population as well as its school-aged population.

4. Explore new recreational opportunities at the recently-acquired Rifle Range site.

5. Seek to acquire lakefront or quarry property for a new Town Beach if waterside private properties should become available for sale.

6. Consider the consolidation of management and maintenance responsibilities for recreational facilities that are now divided among three separate town departments.

Town Cemeteries
Through recent donations of land and land transfers to the Cemetery Commission at the New Boston and Oakland cemeteries, the Town now has adequate burial sites to meet anticipated burial demands. It is not clear whether the annual number of requests for burials at town cemeteries will increase in coming years in spite of a growing and aging population because, increasingly throughout the State, a larger percentage of burials are done by cremation. Nevertheless, the Town should actively seek to acquire any lands adjacent to existing cemeteries when they become available for sale if their topography, soils, and water table are suitable to support burials in order to meet demands beyond the next half century.

Such land acquisitions, even if not used in the near term for additional burials, could serve as open space properties and should be seen as a larger land acquisition strategy to preserve open space throughout the town while simultaneously reserving land for future potential cemetery use.

Capital Facilities Planning
Continue the Town's practice of preparing a 5-year capital and maintenance plan to forecast and fund needed capital facility expansions, improvements, and major replacements and repairs.

Accessibility Improvements
Maintain a rigorous annual funding program to bring all municipal facilities, recreational facilities, and play fields into full compliance with federal and State accessibility laws and regulations.

Surplused Properties

1. Reuse the Navy Yard Fire Station, if cost effective, once the new Central Fire Station is constructed. Possible new uses include: private EMS ambulance services now rented from the Town at the old central fire station adjacent to Town Hall (which is scheduled for demolition to provide expanded Library parking), or, alternatively, consider providing a Youth Center there, or, converting the Station into offices for the Recreation Department.

2. Investigate new uses for the Kenwood Fire Substation once it is abandoned.

3. If a new or expanded Town Hall is constructed at the existing Town Hall site, investigate new uses for the Town Hall Annex. Perhaps a Youth / Recreation Center or School Department programs could be hosted there.

Appendix 6-1
Inventory Of Public Facilities

A complete review of all existing public facilities, schools and active recreational properties was undertaken as well as a review of their current conditions, adequacy to serve their various purposes, and current expansion and improvement plans. The following Inventory documents these reviews and analyses.

General Municipal Facilities

Town Hall (former District 7 School)
62 Arlington Street
The Town Hall, converted from the old District 7 Elementary School constructed in 1893 houses the offices of the Selectmen, Town Manager, Assessors, Tax Collector, Town Clerk/Asst. Town Manager, Accountant, Veterans Office, and Treasurer/Finance Director. The building has three levels; however, there is no elevator. Therefore, much of the facility is not accessible to the disabled. Parking is located east of Town Hall in a lot that is located down an embankment from the Town Hall itself.

Many offices within Town Hall have a shortage of space. Because of the overall shortage of space, not all town offices are located at this facility. Some are located at the Annex (the old Dracut Center school). As a result, communications between the various departments and town administration is not optimal. Additionally, there is little space for public meeting rooms to host various Town Boards and Committee meetings. As a result, many public committee meetings are held at various schools and other scattered sites throughout town. Because of these various shortcomings, there has been discussion of eventually expanding Town Hall or constructing an entirely new facility that perhaps could become the centerpiece of a new town center campus which would include municipal buildings, the Grange Meeting Hall, the Old Yellow Meeting House, expanded Library, church, shared municipal parking, and an outdoor "Green" or "Common", together, perhaps, with retail shops.

Town Hall Annex *(former Dracut Center Elementary School)*
11 Spring Park Avenue
The Town Hall Annex, built as the Dracut Center School in 1898, is a two story (with additional basement) wood framed shingle-clad building. It includes the offices of Human Resources, Building Department, Engineering , Electrical Inspector, Gas/Plumbing Inspector, Board of Health/Public Health Nurse, Recreation / Conservation Department, Animal Control Officer, and a community police substation. The building is in moderate to poor condition and its upper and lower floors are not accessible to those with mobility disabilities.

Moses Greeley Parker Public Library
28 Arlington Street
The Parker Public Library on Arlington Street, built in 1922 and expanded in 1978, is adjacent to the Town Hall. The old Library is a two story building 2,500 square feet in size. It is a handsome structure but is in very poor condition. Its lower level has had extensive water damage in the past. The 1978 addition is a one story building approximately 9,000 square feet in size. The existing library is presently overcrowded and circulation is increasing at a rate of approximately 8% annually. As a result, the existing Library is no longer adequate to serve Dracut's growing population. The original 1922 portion of the Library is now relatively unused except for storage, occasional public meetings and occasional events and reading hours in the winter. Because the 1922 Library is not air conditioned, it cannot be used during the hot summer months. The 1978 addition is the active portion of the Library.

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(Appendix 6-1 Continued)

There is not sufficient space to accommodate usage or expanding collections of books, tapes, videos or computer terminals. At present the library provides seating for only 64 people. State regulations require 3.5 seats per thousand population. A projected population in Dracut of approximately 33,000 would therefore require 116 seats. Also, the library's limited size cannot take full advantage of today's rapidly expanding computer technology. Other deficiencies exist as well. The current space has inadequate soundproofing, no quiet study area, no study hour/craft room for children, and no room for the young adult population. Furthermore there is no longer a meeting room or lounge area for library staff. For all these reasons, the present 1922 and 1978 spaces are inadequate for the future. The Library is largely compliant, however, with handicapped accessibility requirements.

Because of the deficiencies cited above, a feasibility study was undertaken to examine future needs, define an expansion program, and assess the feasibility of an expansion to and renovation of the historic 1922 building. Space needs were projected to the year 2015. Based upon that study, designs for such an expansion have recently been prepared. Those schematic designs call for a new expansion surrounding the historic 1922 portion of the building for a total area of approximately 33,000 square feet. To accommodate this expansion, the 1978 addition will be removed. The expanded Library will include additional office and staff workroom space, reading rooms, children's story hour and crafts space, young adult reading room , space for seniors, quiet study areas, group study areas, expanded computer space, a new Board meeting room, and a large public community meeting room that will be divisible into two smaller meeting rooms. The expanded Library is being designed, however, to operate at present staffing levels.

To provide adequate parking space for the expanded facility, it is proposed that the obsolete firehouse adjacent to the Library be removed once new Fire Stations are constructed elsewhere to accommodate the fire apparatus now stored in this old firehouse. Additional parking may be also be required by negotiated arrangement for overflow parking with the adjacent Church's parking lot.

Once the plans outlined above are approved by Dracut's Permanent Building Committee, the Library Trustees will apply for State grant monies for library construction. Schematic designs for the new library are now being prepared.

Senior Citizens Drop-In Center / Council on Aging (COA)
Mammoth Avenue
The Senior Center / Drop-In Center includes a meeting hall, private meeting rooms/offices, kitchen and offices for the Council on Aging. A planned expansion of the Senior Center is currently funded with a CDBG grant to provide expanded programming and services. The expansion will include: an addition to the main hall, renovations to accommodate medical appointments in a more private manner, improved access, elevator accessibility to the basement to allow better access to game rooms, crafts areas and exercise areas, and a Country Store/Gift Shop to increase revenues to support the Center.

Harmony Hall (St. Mary's Church Hall)
Lakeview Avenue
In 1994 the Dracut Historical Society obtained, through donation, St. Mary's Church Hall, also known as Harmony Hall, for use as a Public Meeting Hall to provide the town with a much needed large accessible public meeting space. The Society and Town successfully relocated the 4,500 square foot building one mile down Lakeview Avenue to its new permanent location adjacent to the Dracut Historical Society Headquarters. Design for conversion to a meeting hall has been completed. However, monies for conversion and construction have not yet been approved.

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(Appendix 6-1 Continued)

DPW Facilities

Greg Dillon Municipal Services Center (DPW - Highway Garage)
833 Hildreth Street
The Municipal Services Center is located at the site of the old landfill. It hosts the Department of Public Works (office, garage bays, and mechanics bays). Adjacent are recreational play fields and open space. The DPW Director has indicated that the existing facility is no longer adequate for the current staffing level of the Department. The Director proposes the construction of several additional garage bays and the expansion of office space into the immediately adjacent mechanics' bays. The current office space may have been originally designed to allow the construction of a second floor as well. Clearly, as the DPW grows and as these various consolidation moves are considered, the DPW facility will need to expand.

Tree/Park Department & Sewer Department Garages
Lakeview Avenue
As described above, the DPW Director wants to replace these garages and relocate their functions to the Municipal Services Center site on Hildreth Street. Currently the Tree/Park Department Garage is used to store vehicles, including two mini- vans for the Council on Aging. Additionally, the Tree/Park Department Garage is used several months of the year (August to October) by a private community organization that sponsors and sets up a Halloween Fright Night show in the facility. As a consequence, this garage must be cleared out annually to provide for this entertainment venue. If the Tree/Park Department were to relocate to the Hildreth Street DPW site, the School Department may want to reuse this facility for its own maintenance shed. (The existing School Department Maintenance Shed on Lakeview may have to relocate if the Police Department expands its headquarters at its present site.)

Public Safety Facilities

Police Station
1600 Lakeview Avenue
Dracut's Police Station is located on Lakeview Avenue between the Junior High School and the Dracut Historical Society building. The Police Department currently has a staff of 44 (full -time), nine marked patrol cars and seven other unmarked vehicles. New personnel will be needed in the future to address Dracut's growing population.

The current building has been judged too small to meet departmental needs and its operations, and communications center are in need of modernization. Additionally, the facility is not compliant with certain building codes, accessibility regulations and other correctional safety requirements and national standards. Needed facilities include: an addition for new administrative space, a new radio/communications room, a data processing / records storage area, a community / training conference room, a two stall garage facility for cruiser repair, detective/investigation working space, interrogation rooms, shower/locker areas, prisoner processing area, and juvenile detention/holding areas.

Funding has been obtained to conduct a Feasibility Study to assess Police Department needs and the viability of providing needed additions. This Feasibility Study is now underway. It is anticipated that this study will be completed in early 1999.

Expansion of the existing Police Station at its present site is certainly one option that will be assessed. Construction of an entirely new Station will also be evaluated. However, the parcel of land on which the Station is now located is restricted in size. In order to expand at this site, the adjacent School Department Maintenance Garage may have to be relocated in order to provide sufficient expansion space.

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(Appendix 6-1 Continued)

Community Police Office
Town Hall Annex; 11 Spring Park Avenue
A community police office is located in the Town Hall Annex. It is staffed on a part-time basis.

Navy Yard Fire Station
156 Pleasant Street
This Station now functions as Dracut's Central Fire Station. When the new Central Station is constructed, this Station will be closed.. Some possible reuse options include space for the Recreation Department and/or a Police substation, or, conversion to private use.

Kenwood Fire Station
at Kearsage and Stuart
This station is an unstaffed on-call facility. It is presently used to store three pieces of fire fighting apparatus. When the new East Dracut Fire Station is constructed, this facility will be closed.

Collinsville Station
The Collinsville Station in the west end is a staffed facility that serves the western portion of the town.

Ambulance Service / Former Fire Station (adjacent to Public Library)
Pleasant Street
This existing on-call fire station houses a stored engine and is leased to a private ambulance service. When the new East Fire Station is constructed, this facility will be closed. If the adjacent Library is expanded, it is likely that this Station will be demolished and its site used for Library and town parking. There are currently no definitive plans to provide relocation space for the private ambulance service which now leases space at this facility.

Proposed Central Fire Station
On Pleasant Street at Harris across from Monahan Field
A new $1.5 million six-bay Central Fire Station is proposed on Pleasant Street across from Monahan Field on Town-owned land (the Stay and Play Playground and parking lot) to replace the Navy Yard Station. When the new Station is constructed here, which is anticipated to be two to three years from now, substitute sites will need to be identified for a new playground area and a new parking site to support Monahan Field across the street.

Proposed East Dracut Fire Station
Jones and Broadway
The new $750,000 East Dracut Fire Station will include four apparatus bays (2 up and 2 down) and will be permanently staffed. The new facility will also include associated crew quarters and storage space. The Station and site layout will be able to accommodate the expansion of an additional bay if necessary in the future. To operate the new Station will require eight firefighters. Largely funded with state monies, the new station will require the installation of a new traffic signal at the intersection of Jones Avenue and Broadway. Construction is anticipated to begin in 1999.

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(Appendix 6-1 Continued)

Schools
Dracut's Public School facilities include a High School, Junior High School, four elementary schools, and School Administrative Offices. The heart of the school system is at the 82 acre "academic campus" on Lakeview Avenue that includes the High School, the Junior High School, the Middle Elementary School, and a variety of play fields. A planned new Junior High School will be constructed at this campus as well.

Over the years, due to population growth and the need to accommodate new mandated and desired educational and special needs programs, Dracut's schools had become overcrowded. In 1995, Mt. Vernon Group Inc. prepared a *Feasibility Demographic Study for the Dracut Public Schools (Pre-K through 8)* in behalf of the Town of Dracut and the Permanent Building Committee. The Study examined population projections, provided a physical plant analysis, identified needs and shortcomings (such as overcrowded classes), and suggested options as solutions for elementary school facilities.

Within the past couple of years a $10 million, 29,000 square foot expansion was added to the High School. Nevertheless, overcrowding remains at the junior high school and elementary school levels as evidenced by portable classrooms in use at the Middle School, Campbell Elementary School and Parker Elementary School. In fact, in 1998, 469 of Dracut's 2,446 students are housed in modular classrooms. To help relieve these crowded conditions, there are now plans to construct a new Junior High School for grades 7 and 8 behind the existing junior high school facility. Designs for this new facility have been completed and construction is pending SBAB grant funding approval from the Commonwealth. When it is completed, the existing Junior High School will be converted to a new upper elementary school for grades 5 and 6 to relieve crowded conditions at the elementary school level.

Dracut High School (Grades 9-12)
1624 Lakeview Avenue
The Dracut High School is an excellent facility with many play fields and sufficient parking. 1998 enrollment is 957 students. A recent addition of 29,000 square feet was constructed together with some renovation of the older building. With the completion of the recent expansion, the High School's capacity is approximately 1,100 students, which should accommodate projected enrollments until approximately 2003-2004 or beyond.

Englesby Junior High School (Grades 6-8)
Lakeview Avenue Campus
The Junior High School, constructed in 1963 is located on a 70.2 acre parcel shared with the High School and Middle Elementary School. It is a two story brick and curtainwall building approximately 64,368 square feet in size.

A report prepared by the School Council entitled, *Englesby Junior High School: School Improvement Plan 1994-1995* identified numerous deficiencies including crowding of classrooms, lack of support spaces such as an auditorium or media center, shortage of laboratory science space, a loss of practical arts rooms converted to other uses such as a classroom and maintenance shop, and general aging of the physical plant. The capacity of the school is 542 students. In 1995 the enrollment was 703 students - 161 students above reasonable capacity. 1998 enrollment is 643 students - 101 students above reasonable capacity. Because of these many deficiencies, Dracut authorized that a new Junior High School be programmed and designed.

Proposed new Junior High School (Grades 7-8)
Lakeview Avenue Campus
Based on these documented deficiencies in the current Junior High School, a new Junior High School was programmed and designed to accommodate 1000 students which exceeds enrollment projections for the year 2004 or beyond. New recreation fields are also planned, possibly including the construction of new

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(Appendix 6-1 Continued)

lighted tennis courts if sufficient funding is identified. The construction of this new facility is now awaiting State funding. When that funding is obtained, the new Junior High School will be constructed behind the existing one. When the new Junior High School is constructed, the existing Junior High School is planned to be converted to a new upper elementary school for grades 5 and 6.

Dracut Middle Elementary School
1624 Lakeview Avenue

Located on 70.2 acres of land (which also includes the High School and Junior High School in a "campus" configuration), the Dracut Middle School, actually an elementary school, was constructed in 1968. It is 76,600 square feet in size and is a one and two story building constructed of brick, stone, and curtain wall infill. According to the Mt. Vernon Group Inc., the optimal capacity is 648 students with an extended capacity of 720 students. Today, enrollment is 967 students. Therefore, the Middle School exceeds capacity by 247-319 students.

Parker Avenue Elementary School
Parker Avenue at School Street
The Parker Elementary School was constructed in 1924 on a small 3.52 acre site. The building is a brick 2 1/2 story facility approximately 17,640 square feet in size. The school is made up of this 1924 building connected to an annex constructed of portable modules. An adjacent field is designated as a ball field, but it is not appropriate for students in the early grades. As a result, the school's play areas are limited.

The school is now overcrowded and above its capacity as evidenced by the current usage of portable classrooms. Most classrooms in the building are small in size and do not meet Massachusetts Board of Education standards The optimal capacity of the Parker Avenue School, as estimated by the Mt. Vernon Group Inc., is 238 students with an extended capacity of 250 students. Today, enrollment is 242 students. To bring this school to current standards would require a 30,000 square foot addition. However, to obtain State funding for such an addition would be difficult because of the facility's small site. (State standards recommend a minimum of 10 acres.)

Greenmont Avenue Elementary School
88 Spring Park Avenue
Constructed in 1927 (with an addition in 1934) , the Greenmont Avenue Elementary School is one of Dracut's older school facilities. It is a 2 1/2 story brick building 28,051 square feet in size. In 1995, the school's capacity was 294 students, and with full Kindergarten, it would be 279 students. The site sits on 2.21 acres of land and about 3 acres of adjacent town land which includes a fenced play structure and some wetlands areas. (State standards require 10 acres.) In 1998, enrollment is 396 students. Because the school is an older facility classrooms are small in size and do not meet State standards.

Joseph A. Campbell Elementary School
1021 Methuen Street
The Campbell Elementary School was constructed in 1974 an is sited on 10.86 acres. It is a one and two story building of 94,781 square feet and is located in the Kenwood section of Dracut. The capacity of the school in 1995 was 736 to 820 students. Today, enrollment is 854 students. Therefore, enrollment exceeds capacity by 34 to 118 students. Today, portable classrooms are used to accommodate enrollment and parking shortages exist.

Several years ago, the Town acquired a house and 3.17 acres of land adjacent to the Campbell School for purposes of expanding the parking lot at the facility. Construction of this expanded lot has been undertaken.

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(Appendix 6-1 Continued)

Proposed New Upper Elementary School
In 1995, the Mt. Vernon Group recommended the construction of new elementary school space to relieve crowded conditions throughout the elementary grades. Optimally, four classrooms per grade were recommended with a space requirement of 82,775 square feet that could accommodate an enrollment of 716 students optimally and 833 students if extended class size was 25 students per room. Since expansion of some of the older elementary schools did not appear to be a viable option, plans were made to convert the existing Junior High School to a new elementary school once a new Junior High School is constructed to replace it.

Current and more recent plans call for the conversion of the existing Junior High School into an Upper Elementary School for grades 5 and 6. Such a facility would accommodate approximately 768 students.

School Administration Offices (Old Collinsville School)
Mammoth Avenue at Lakeview Avenue
The old Collinsville School is presently used as the School Administration Offices.

School Department Maintenance Shed
The School Department maintains a 4,000 square foot maintenance, repair and workshop shed behind the Junior High School. There is currently a proposal to expand the Shed by 2,400 square feet to compensate for the loss of former maintenance workshop space in the basement of the High School that was converted to student instructional space and design is underway.

Recreational Playfields, Parks, and Playgrounds

Public Works Fields (Hildreth Park) (former landfill site)
833 Hildreth Street; 3.57 acres
Managed by the Parks Department
This complex of play fields and park at the capped landfill site adjacent to the DPW complex includes 2 baseball fields (Chalifoux and Pierce Memorial Fields), 1 soccer field (Edwards Field), and a paved parking lot. The soccer field is in good condition but the baseball fields are in poor condition because they are located atop portions of the landfill that have settled.

Michael J. Monahan Memorial Park
499 Pleasant Street; 5.63 acres
Managed by the Parks Department
Monahan Park includes 2 softball fields, 1 Little League baseball field, and a concession stand. Parking is provided across the street at (and shared with) the Stay and Play Playground. Because parking is located across the street from Monahan Park, there are safety crossing problems. At present, the Town has made inquiries about acquiring a house and 4 acre property adjacent to Monahan Park to accommodate parking. When the new Central Fire Station is constructed across the street at the current Stay and Play Playground and parking lot, this adjacent 4 acre property will be critical in providing sufficient and safe parking.

Carrick Ball Field & Playground
1285 Mammoth Road; 4.97 acres
Managed by the Parks Department
This facility includes 2 Little League baseball fields (also used as practice soccer fields), a basketball backboard, and playground equipment together with a paved parking lot. To meet the need, as identified by the 1996 *Open Space and Recreation Plan*, for another tot lot in town, there are plans to construct a new tot lot at this park when funding becomes available.

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(Appendix 6-1 Continued)

Stay & Play Playground
488 Pleasant Street; 3.06 acres
Managed by the Parks Department
This playground includes two Creative Play Areas and playground equipment. The playground provides a large parking lot that can accommodate up to 100 cars using the unpaved portion of the lot. This parking area supports this playground as well as Monahan Field across the street. In part because of this plentiful parking, this playground is used by families from almost all neighborhoods of the town as well as Lowell residents. Presently, this Playground site is planned as the location for the new Central Fire Station. When this new Station is constructed, it will require the permanent closure of this recreational and parking area. A substitute playground will have to be found if this should occur, perhaps at the newly-acquired Lachut property. Additionally, substitute parking to support Monahan Field across the street will also need to be found, perhaps at a 4 acre property adjacent to Monahan Field that the Town would have to acquire from a private property owner.

Intervale Park/Field
30 Intervale Avenue; 1.50 acres
Managed by the School Department
This park and play field includes 1 baseball field and playground equipment. However, it is in very poor condition. The property was acquired by the Town to temporarily provide space when the nearby Campbell School was being renovated. A leaching field to support the Campbell Elementary School was constructed under this property and an adjacent restaurant leases a portion of the property for parking.

Hovey Plaza Playground
330 Pleasant Street; 2.14 acres
Managed by the Parks Department
This facility includes a lighted Little League baseball field and a set of grandstands, a concession stand, and a press box building, playground equipment, and a paved parking lot.

Long Pond Park/Beach
202 Lakeshore Drive; 0.56 acres
Managed by Long Pond Park Improvement Association (LPPIA)
This recreational area, leased by the Town to the LPPIA for $1 per year, includes a beach, boat ramp, horseshoe pit, playground equipment, picnic area, and port-a-potties. Individuals and families may use these facilities by joining the LPPIA for an annual fee. Because no parking is available, this park and beach serves the immediate neighborhood, but is not used on a town-wide basis.

Proposed New Tennis Courts
Based on the recommendations of the *1996 Open Space and Recreation Plan*, the Recreation Director has envisioned development of new lighted tennis courts at the School Campus on Lakeview Avenue so that there could be joint public and school tennis program use. These lighted courts would be available to adults and the general public at nights and on weekends.

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(Appendix 6-1 Continued)

School Playfields

High School, Junior High, & Middle School Fields
1624 Lakeview Avenue; 70.20 acres
Managed by the School Department
This large play field complex includes 1 football field and track, 1 softball field, 1 soccer field, basketball hoops, and a tot lot with play equipment.

Campbell Elementary School Fields
1021 Methuen Street; 11.0 acres
Managed by the School Department
The Campbell School Fields include 1 Little League baseball field, 2 basketball courts, and 2 tennis courts (the only tennis courts in town). The basketball courts are in good condition and maintained by private funds.

Greenmont Elementary School Courts
88 Spring Park Avenue; 2.21 acres
Managed by School Department
The Geenmont School play area consists of 2 basketball hoops and a large paved area. It is possible that additional basketball courts could be constructed at this already paved site.

Parker Elementary School Field
93 Parker Avenue; 3.35 acres
Managed by School Department on Town-owned land
The Parker School Field hosts 1 softball field. The field is located on an adjacent Town-owned property not owned by the School Department.

Parks & Parklettes
Dracut operates and maintains a number of parks and even smaller parklettes. The parks are, for the most part, designed for passive recreational use.

Varnum Park, a small 0.75 acre site, located at 165 Arlington Street at its intersection with Broadway - a very visible and prominent location - is a passive landscaped park with a small adjacent parking lot. It includes no recreational facilities. Other parks include: *Costello Square, Hovey Square* and *Drapeau Square*. Small parklettes include *Gunther Park, Sladen/Dinley, Hamblett Avenue, Turner Square, Park Square, Daigle Square, New Boston Road, and Willard/Cheever.*

Section 6A: WATER SUPPLY & SEWAGE DISPOSAL SYSTEMS

INTRODUCTION

The ability to obtain clean drinking water and dispose properly of wastewater is a prerequisite for virtually any type of development. Therefore, the present and future availability of public water and sewer utilities will be a major factor determining the amount, type, and location of new residential, commercial, and industrial uses in Dracut. This section of the Master Plan provides an inventory of Dracut's existing water supply and sewage disposal systems, as well as the sewer system extensions currently proposed and under construction. This section also identifies future water and wastewater disposal needs in the Town, and provides recommendations for maintaining economical and environmentally sound water and wastewater services.

6A.1 WATER SUPPLY SYSTEMS

Dracut obtains its drinking water from four different towns, under the organization of two different water supply districts. In addition, certain rural portions of the town are supplied by private drinking water wells. All of these supplies, as well as their capacity for future expansion, are discussed below.

Dracut Water Supply District

The Dracut Water Supply District covers the entire area of Dracut west of Route 38 and a small amount of the area directly east of Route 38. It includes the neighborhoods of Dracut Center, Navy Yard, and Collinsville. The district is a corporate body administered by three Water Commissioners, a Clerk, and a Moderator, all of whom are elected by Dracut voters within the district.

The District's main water source is two well fields, one located in Dracut and the other in Tyngsboro. The district also purchases water from the Town of Lowell, as needed. This supply is limited to approximately 1 million gallons per day (gpd) by the size of the water main from Lowell.

Table 6A-1
Water Sources for Dracut Water Supply District

Source	Number of Wells	Capacity (gpd)
New Boston wellfield, off Hildreth Street, Dracut	2	430,000
Tyngsboro wellfield, off Frost Road, Tyngsboro	2	2,500,000
City of Lowell (Merrimack River)	--	1,000,000
Total	4	3,930,000

Source: Dracut Water Supply District.

The Dracut Water Supply District also maintains three storage facilities to pressurize the water system, enhance maximum flows for fire protection purposes, and provide a reserve to meet demand during peak periods. Characteristics of these facilities are as follows:

Table 6A-2
Storage Facilities in the Dracut Water Supply District

Location	Facility Type	Capacity (gallons)
Marsh Hill, Dracut Center	Stand-up concrete	3,000,000
Thortleberry Hill, Collinsville (in the State Forest)	Cement tank	860,000
Passaconaway Drive (near Long Pond)	Steel water tower	2,500,000
Total Storage Capacity		6,360,000

Source: Dracut Water Supply District.

As of 1998, the District serviced between 8,500 and 8,800 water users, including 1,000 users in Tyngsboro. Current demand ranges from 1.2-1.4 million gpd during most times of the year, and increases to as much as 2.5 million gpd in the summer.

The Massachusetts Department of Environmental Protection tested both the Dracut and Tyngsboro wellfields in April 1998 and reported no water quality problems. Both wellfields are protected by a 400' (radius) exclusion zone, in which new construction of any kind is prohibited, and by a ½-mile (radius) Interim Wellhead Protection Area (IWPA), in which septic system discharges are limited for the purposes of avoiding nitrate pollution.

The District has more than 100 miles of water mains 6" or greater and over 85 miles of service pipe in the ground. There are no water treatment plants in the district. Fluoride is injected into the water supply at each well.

Future Expansion Possibilities
New residential connections are occurring at the rate of about 150-200 per year, or approximately 60,000 gpd of additional water use. However, the system has limited options for expansion due partly to the lack of large productive aquifers within the town. Based on past testing, there appears to be little potential for future well sites in the District.

As water demand increases in the upcoming years, one option for obtaining additional water at this time will be from the Merrimack River. In exploring this option, the Town should consider the following:

- The District already owns land in Tyngsboro near the Hudson, NH, border, where a water treatment plant could be constructed. The water intake, located near the New Hampshire border, would be upstream of pollution sources from Lowell.

- A feasibility study performed in the late 1980s determined that water quality at this site was adequate for a public drinking water supply, provided that the water is first treated using standard techniques.

- The utilization of the Merrimack River as a new water source will require an extensive review under MEPA (the Massachusetts Environmental Policy Act) and possibly other state or federal agencies. The time and money required for this review must be considered when deciding if and when to pursue a new treatment plant.

Kenwood Water District
The Kenwood Water District contains approximately 1,200 households in the eastern section of Dracut, including the densely-settled Kenwood neighborhood. The Kenwood Water District is run by the Dracut Town Manager's office.

The District has no water supplies of its own, and provides only the water distribution service. Its two water sources are:

- **The City of Lowell:** The majority of the District uses Lowell water, which is pumped from the Merrimack River and treated prior to delivery to Dracut. Areas serviced by Lowell water include the entire Kenwood neighborhood and a few additional areas.

- **The Town of Methuen:** Three small sections of East Dracut obtain water from the Town of Methuen. These include the streets off Wheeler Road, Salem Road, and Commercial Drive/McGrath Road.

According to District representatives there are currently no significant water pressure problems within the Kenwood Water District. However, the MA Department of Environmental Protection (DEP) has imposed a moratorium on new industrial water users in most parts of the District. The moratorium is required because the District cannot presently store water in order to allow higher peak usage, and therefore additional industrial water users could deprive residential users of sufficient water during peak demand periods.

Future Expansion Possibilities
By 1999 or 2000, the District plans to install a new water storage tank which will allow the system to provide peak demand flows which exceed the system's average supply rate. When the new tank is operational, the DEP moratorium will no longer be required, and water will be available to industrial users throughout East Dracut's industrially zoned areas.

According to District representatives ample water is available from Lowell and Methuen to service the areas of the District that use these respective water supplies.

Private Drinking Water Wells
Several sections of northeastern Dracut obtain their drinking water from private wells. These include the users near Peters Pond, along Salem Road south of Spring Road, and on the eastern portion of Marsh Hill Road. According to Mr. McCarthy, there are currently no plans to expand public water service to these areas.

6A.2 SEWAGE DISPOSAL SYSTEMS

Sewage disposal requirements are one of the greatest potential constraints on the location of development. The two main types of sewage disposal systems are individual on-site disposal systems (primarily septic systems) and public sewers, which feed into a centralized wastewater treatment plant. Septic systems may be used only in areas with suitable soil, groundwater, and bedrock conditions, as dictated by Title 5 of the State Environmental Code and local Health Department regulations. The availability of a sewer connection eliminates these site constraints, and also allows a greater density of development.

Presently, Dracut uses a combination of Town sewers and individual on-site septic systems to treat and dispose of wastewater. Information on Dracut's existing sewer system was provided by Dracut Sewer Department personnel. Additional information on existing sewage disposal systems, plus proposed future sewer construction, is contained in the Comprehensive Wastewater Management Plan (CWMP) submitted by Camp, Dresser, and McKee, the Town's wastewater consultant, in September 1998.

Septic Systems

Septic systems consist of two main parts: a septic tank, typically a metal tank 1,000 gallons or larger, and a leaching system. Sewage wastes flow directly into the septic tank, where solids and floatable materials are detained. All remaining liquids flow out of the tank and into the leaching system. The leaching system distributes liquid sewage underground, over an area of several hundred square feet (the "leaching field"). If the tank is functional and properly situated, physical and biological processes in the soil purify the liquid sewage as it filters downward.

Soils in most parts of Dracut are not conducive to the optimal functioning of septic systems. According to the Middlesex County Interim Soil Survey Report (U.S. Department of Agriculture Soil Conservation Service, Third Edition, 1991), more than 90% of the Town has "severe" septic limitations because of wetness, slow percolation, flooding, depth to bedrock, or slope.

In conjunction with the preparation of the CWMP, the Town surveyed all 2,200 of Dracut's unsewered households about the performance of their septic systems. Of the 53% who returned their surveys, 21% indicated that they have a problem with their system, while 40% indicated that their neighbor has a septic problem. Currently unsewered areas with the greatest frequency of problems are Collinsville (east of Beaver Brook and along Beaver Brook Lane) and the Richardson Brook/Trout Brook area. The Peters Pond area of northeastern Dracut has a moderate level of septic failures, but this area is environmentally sensitive due to the existing high nutrient concentrations in Peters Pond and the aquatic weed growth that these nutrients cause.

Based on the results of this survey plus the assessment of Dracut's soil conditions, the CWMP concluded that the "overall assessment for populated areas [in Dracut] is that on-site systems are not the most feasible long-term solution for wastewater disposal."

Existing Sewer System

As of 1996, the sewer system serviced 16,200 individuals, or 58% of the Town's population, in addition to commercial, industrial, and institutional users. Existing sewered areas include most parts of the Dracut Center, Collinsville, and Navy Yard neighborhoods. The remainder of the Town, including all of East Dracut, currently uses individual on-site disposal systems.

Discharge from the sewer system feeds to the Lowell Wastewater Treatment Plant (WWTP). Dracut owns 11.2% of this facility, or 3.6 million gallons per day of treatment capacity, based on an Intermunicipal Agreement (IMA) with Lowell made in 1977. Of this 3.6 mgd, Dracut must provide Tyngsboro with 1.0 mgd of capacity, also based on a 1977 IMA. Allocation, existing usage, and reserve capacity at the Lowell WWTP is shown in Table 6A-3.

Table 6A-3
Allocation of Wastewater Treatment Capacity
at the Lowell Wastewater Treatment Plant

Town	Allocated Capacity	Existing Usage	Remaining Capacity
Dracut	2.60 mgd	1.35 mgd	1.25 mgd
Tyngsboro	1.00 mgd	0.34 mgd	0.66 mgd
Total	3.60 mgd	1.69 mgd	1.91 mgd

Source: Comprehensive Wastewater Management Plan, September 1998.

Sewer Construction Project. In January 1997, the Suffolk Superior Court ordered that Dracut build additional sewers to eliminate ground and surface water pollution in the Town caused by inadequate wastewater disposal facilities. The Court ruled that in certain parts of Town, existing pollution violates the Massachusetts Clean Waters Act. In addition, and a high rate of septic system failures in many parts of Town is indicative of future pollution threats. In many of these areas, existing septic systems cannot be economically repaired or replaced to meet minimum state and local standards because of unsuitable soil conditions.

In its Modified Final Judgment (MFJ) dated January 23, 1997, the court ordered Dracut to sewer specific areas of the Town, imposed deadlines for planning and constructing the additions to the system, and specified a phasing schedule for the project. The Town hired Camp, Dresser, and McKee consulting engineers (CDM) to assist with the design of the sewer project. The areas proposed to be sewered between 1999 and 2003, pursuant to the MFJ, are described below:

Calendar Year 1998 (Completed)

- The area in Kenwood bounded approximately by Brook St., Route 110, the Lowell border, and Methuen St.
- The area in Kenwood bounded approximately by Brigham Ave., Methuen St., Varnum St., and Route 110.
- The unsewered area southeast of Long Pond, including the streets on both sides of Passaconway Dr.

Calendar Year 1999

- The remaining unsewered areas in Dracut Center, including areas within one-quarter mile of Peppermint Brook.

Calendar Year 2000

- The unsewered area in southwestern Dracut bounded approximately by Mammoth Rd., Donahue Rd., and the Lowell border.

- Several streets near the Lowell-Dracut State Forest, including Forest Park Rd., Davis Rd., Dexter Ave., Windsor Rd., Berkley Dr., and Eldridge Ter.

Calendar Year 2001

- The area on both sides of Route 38 between but not including Avis Ave. and Fox Ave.

- Several streets in Dracut Center, including Aiken Ave., Kearsage Ave., Arthur Ave., and Emerson Ave.

According to the CWMP, the sewer improvements through the year 2003 are expected to cost $18.7 million (in 1998 dollars), and will be funded through rate increases to sewer customers.

The sewer expansion program is subject to modification as the design process continues and as the project is reviewed pursuant to the Massachusetts Environmental Policy Act (MEPA). Under MEPA, the Sewer Commission filed an Environmental Notification Form (ENF) in December 1997 and a Draft Environmental Impact Report (DEIR) in September 1998. The DEIR examines the project's secondary growth impacts, identifies impacts and mitigation measures to protect wetlands and archaeological resources, and demonstrates the project's compliance with the MFJ.

Sewer Expansion Beyond 2003

The MFJ also required the Town to prepare a Comprehensive Wastewater Management Plan to evaluate wastewater needs for all areas that will not have sewers after the work required by the MFJ is completed in 2003. As required by the MA Department of Environmental Protection (DEP), the CWMP utilizes a 20-year planning horizon, from 2004 to 2024.

The CWMP analyzed wastewater disposal needs and options based on soil conditions, existing lot sizes, population density, zoning, disposal systems, pumping records, Title 5 failures, drinking water influence, surface water testing performed by DEP, public input, and the results of the septic system questionnaire. Based on these criteria, areas needing sewers were identified and priorities were established to sewer the most deserving areas first. Overall, the CWMP concluded there are no areas (beyond those areas planned to be sewered by 2003) in need of immediate attention, but that in the long term sewers are more feasible than septic systems for most areas. A brief outline of the recommended sewer construction phases contained in the CWMP is provided below. Cost estimates provided below are in 1998 dollars.

> **Phase 1** includes all the streets north of Primrose Hill Road, west of Hildreth, and east of Beaver Brook; Beaver Brook Lane; the Bonnie Avenue area; and Varnum Avenue. Sewer construction is expected to run from 2004 to 2009 cost $5.4 million.
>
> **Phase 2** includes many of the unsewered areas in the western portion of Dracut and Parker Village/ Richardson Brook area and the eastern portion of Merrimack Avenue. Sewer construction is expected to run from 2009 to 2014 cost $11.5 million.
>
> **Phase 3** includes the Peters Pond area, the Lincoln Lane area, industrially-zoned portions of Broadway, the Loon Hill Road area, and Black Oak Lane. Sewer construction is expected to run from 2014 to 2019 cost $18.5 million.
>
> **Phase 4** includes a number of streets throughout the town that are less populated or have more recently constructed homes. Sewer construction is expected to run from 2019 to 2024 cost $11.2 million.

In its Certificate on the DEIR (and in attached comment letters), MEPA expressed serious concern that this proposed sewer expansion may promote urban sprawl and the loss of open

space in Dracut. The Certificate asks the Town to address these potential impacts by scaling back its sewer expansion program and/or through appropriate growth control and land use policies.

As shown in Table 6A-4, wastewater flows to the sewer system are expected to increase as Dracut's population increases, as the Town develops its industrial and commercial sites, and as more areas of the Town receive sewer service under the CWMP's recommended plan. The wastewater generation estimates provided below are based on population growth estimates generated by Massachusetts Institute for Social and Economic Research as well as the Dracut Planning Board.

Table 6A-4
Projected Future Wastewater Flows to Sewer System
and Potential Method of Disposal

Year	Residential Flows	Institut'l Flows	Commercial Flows	Industrial Flows	Total Flows*	Flows to Lowell WWTP	Flows to GLSD**
1996	1.02 mgd	0.06 mgd	0.11 mgd	0.004 mgd	1.35 mgd	1.35 mgd	0 mgd
2004	1.35 mgd	0.08 mgd	0.16 mgd	0.004 mgd	1.80 mgd	1.80 mgd	0 mgd
2009	1.50 mgd	0.08 mgd	0.16 mgd	0.004 mgd	1.98 mgd	1.98 mgd	0 mgd
2014	1.65 mgd	0.08 mgd	0.17 mgd	0.12 mgd	2.26 mgd	2.26 mgd	0 mgd
2019	1.90 mgd	0.08 mgd	0.20 mgd	0.38 mgd	2.85 mgd	2.47 mgd	0.38 mgd
2024	1.98 mgd	0.08 mgd	0.21 mgd	0.45 mgd	3.04 mgd	2.60 mgd	0.44 mgd

*Total flows exceed the sum of residential, institutional, commercial, and industrial flows because additional wastewater is added by infiltration and inflow.
** Greater Lawrence Sanitary District.
Source: Comprehensive Wastewater Management Plan, September 1998.

As shown in Table 6A-4, total flows are expected to exceed Dracut's 2.6 mgd allocation at the Lowell WWTP by about 2017. At this time, Dracut will have several options: it could negotiate with Lowell for additional capacity; build a small wastewater treatment plant in East Dracut; or try to obtain a connection to the Greater Lawrence Sanitary District's (GLSD) treatment plant in Andover. Alternatively, an aggressive water conservation program may be able to reduce water demand and sewage generation such that Dracut does not exceed its 2.6 mgd allocation at the Lowell WWTP. Of these options, the CWMP tentatively recommends connection to the GLSD. Projected flows to the Lowell WWTP and GLSD through 2024 are shown in the right two columns of Table 6A-4.

6A.3 WATER AND SEWER RECOMMENDATIONS

The following recommendations are intended to provide Dracut residents with reliable water and sewage disposal services while minimizing the cost and environmental impact of these services.

Water System Recommendations

As Dracut grows, the Town will need to look for new water sources beyond the few aquifers within Town limits. In addition, the Town should take steps now to ensure that the water distribution system functions smoothly and with sufficient pressure in the future. Specifically:

1. The Dracut Water Supply District should examine the feasibility of establishing a new water source on its land along the Merrimack River in Tyngsboro.

2. The Kenwood Water District should install the water storage tank needed to provide adequate pressure to the system.

3. The Town should avoid future water pressure problems by requiring water system impact assessments and mitigation programs for large residential developments, industrial users, and other significant water users. Such a policy would ensure, for example, that water mains are an adequate size and are looped, rather than dead-ended.

4. The Dracut Water Supply District and the Kenwood Water District should be merged to create a single water providing entity in the Town.

Because of the high cost of planning, permitting, and building new public water sources, the Town should implement water conservation programs as a cost-effective solution to meeting future water demand. The CWMP outlines potential water conservation programs that include public education and subsidizing of low-flow fixtures to retrofit existing homes and businesses. Using these measures alone, the Town could save 54,000 gpd through a "passive program" (10% participation) or 190,000 gpd through an "aggressive program" (35% participation). Additional savings are possible through leak detection programs, bylaws that ban or restrict certain outdoor water uses, water audits, full water metering, and water billing policies. Through these mechanisms, the Town may be able to postpone need to implement additional water sources, and to avoid the need to send wastewater from its sewer system to the GLSD—two costly projects.

The Town should consider implementing the following water conservation measures:

1. Distribute water conservation pamphlets to customers, including information on low-water landscaping, effective lawn-watering techniques, and household water conservation tips. This information should be distributed by the Dracut Water Supply District and Kenwood Water District with the water bills.

2. Conduct leak detection on the water mains on a regular basis.

3. Conduct water audits on a regular basis to determine the amount of unaccounted-for water. Work to reduce the amount of unaccounted-for water as problems are identified.

4. Draft a water ban bylaw, which would prohibit wasteful water uses during dry periods. By reducing water demand during peak use periods (which drive the overall need for water supplies), the Town can defer by several years the need to develop costly new water sources.

5. Impose voluntary and mandatory limitations on the use of water for irrigation, including a prohibition on irrigation use during the hottest part of the day. Consider a prohibition on the use of automated in-ground sprinkler systems, which are significant water users in many towns.

6. Ensure that 100% of the town's residences, businesses, and other buildings are metered in order to monitor their water use and bill customers on a per-unit basis.

7. Implement an increasing block rate billing structure (where per-unit cost increases as water use increases) to promote conservation among the highest-use water customers.

8. Providing water customers with subsidized water saver kits, including low-flow shower heads and other fixtures that they can install themselves.

Sewer Disposal Systems

To maximize the effectiveness of the new sewer system, the Town should continue to implement a system of financial incentives to encourage residents in newly-sewered areas to connect promptly to the sewer system. The current system allows homeowners to connect to the sewer system for a tie-in fee of $200 for the first two years of operation, whereas the fee rises to $2,500 after two years.

Expansion of Dracut's sewer system may cause secondary growth impacts by allowing the development of parcels that were previously undevelopable because of wastewater disposal constraints. The Town should be aware of the potential for secondary growth impacts and work proactively to limit these impacts to the desired areas by taking the following measures:

1. New sewers should be provided primarily in already developed areas where on-site sewage disposal systems are not feasible. In general, sewers should not be extended to undeveloped or sparsely developed areas in anticipation of future development. One exception to this rule may be Dracut's industrial areas, where sewer connections may attract higher-quality businesses to the Town.

2. Prior to the construction of new sewers, the Town should establish policies that specify and limit the future extent of the sewer system (e.g. whether spurs or additions may be built at a later time), and state the conditions under which an extension of the system would be allowed. These guidelines should be legally incorporated into the Town By-law.

3. The Planning Board should draft a set of guidelines to control the growth that might otherwise be generated by the installation of the sewer system. Several growth control recommendations are provided in the Land Use and Open Space and Environment sections of the Master Plan.

4. Future sewer planners and engineers should work with the Master Plan Committee so that their plans for sewer construction are consistent with the goals, recommendations, and Guide Plan for Future Land Use in the Master Plan.

<u>On-Site Sewage Disposal Systems</u>

In some less-developed portions of Dracut, on-site sewage disposal systems are the most economical and appropriate method of wastewater disposal. Management of on-site systems should focus on detecting and correcting problems promptly to avoid threats to the environment and public health. To this end, the following measures are recommended:

1. The Health Department should distribute brochures to educate the owners of septic systems on septic technology, maintenance, and monitoring; septic system "do's and don'ts"; and the

hydrologic cycle and groundwater protection. Copies of the brochures currently available from the National Small Flows Clearinghouse are included in the CWMP.

2. The Health Department should continue to participate in the state's Title 5 Financial Assistance Community Septic System Management Program to obtain loans for individual landowners to repair or replace deficient septic systems.

3. The Health Department should monitor the pumping of individual septic tanks, based on mandatory records provided by septic pumping companies. Based on this information, the Health Department should identify "problem systems" that have not been pumped in three or more years, as well as tanks that have been pumped four or more times in a year, indicating a possible problem. The Health Department should work with system owners to remediate problems, using money from the Title 5 Financial Assistance Community Septic System Management Program, if appropriate.

4. The Town should dedicate sufficient resources and staff to comply with the requirements of the MFJ to monitor and correct problems with on-site disposal systems.

Section 7:
TRANSPORTATION

Section 7: TRANSPORTATION

Transportation and land use are inextricably related. Land use activities affect the demand on transportation facilities, and transportation services are a major determinant in siting development projects and cumulatively shaping the form of a community. The basic concept underlying the relationship between land use and transportation is *accessibility.*

> *Accessibility is a measure of the value of a parcel of land given its proximity to all other relevant activities and is measured by the existence, availability and feasibility of the access modes (auto, transit, other) that would serve the property in the before and after situations.*[1]

A well-conceived community master plan will outline the steps needed to ensure that residents of a community are afforded reasonable *accessibility*, and that land use locations and intensities - existing and projected - do not overwhelm the transportation system. It offers the opportunity to identify specific circulation or congestion locations and to propose physical improvements that hold promise for correcting those problems. The master plan also provides the basis for establishing policies that later can be used to guide development and resolve community traffic problems.

This section begins with a general description of the transportation conditions that currently exist in Dracut. An assessment is then made of the "balance" that presently exists between the transportation facilities and services that are available in the community and the demands placed upon those facilities and services by the existing pattern and intensity of land development. This assessment answers three basic questions:

> Do the current densities and intensities of development in Dracut overwhelm the ability of the available and planned transportation services to provide an acceptable level of service?
>
> Are the design and designation of streets in the community adequate for existing traffic levels, compatible with the abutting land uses, and/or consistent with the desired character of the community? and,
>
> Has there been adequate planning for all transportation modes, including the street circulation system, public transportation, pedestrians and bicyclists?

Based on the assessment of current conditions, and the input of local residents and officials, a number of transportation-related goals and policies are next identified to ensure that a reasonable "balance" between land use and transportation will be maintained in the future. Finally, specific recommendations for modifying existing land use/zoning and improving the transportation infrastructure are made for Town consideration.

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[1] J.D. Eaton, *Real Estate Value in Litigation*, Appraisal Institute: Chicago, IL, 1994.

7.1 OVERVIEW OF EXISTING TRANSPORTATION CONDITIONS

Travel Characteristics of Dracut Residents

As described earlier in Section 2, a very high percentage of Dracut residents are in the workforce and are employed in communities that are either immediately adjacent to Dracut or which enjoy ready access from Route 3, Route I-495 or Route 1-93 - the three major highways that exist to serve regional travel. The primary workplace destinations of Dracut residents are summarized in Table 7-1 below, while the residence locations of those employed in Dracut are shown in Table 7-2.

Table 7-1
Primary Workplace Destinations of Dracut Residents

	Dracut Residents	
Workplace Destination	# Persons	% of Total
Lowell	3,304	25.0
Dracut	1,829	13.8
Tewksbury	927	7.0
Billerica	695	5.3
Chelmsford	645	4.9
Bedford	605	4.6
Andover	508	3.8
Lawrence	369	2.8
Burlington	354	2.7
Wilmington	337	2.6
Boston	324	2.4
Nashua, NH	281	2.1
Other cities and towns	3,021	23.0
TOTAL	**13,199**	**100.0**

Source: 1990 U.S. Census

Table 7-2
Residence Locations of Dracut Workforce

Place of Residence	# Persons	% of Total
Dracut	1,829	38.3
Lowell	1,214	25.4
Pelham, NH	179	3.7
Methuen	130	2.7
Tyngsborough	126	2.7
Hudson, NH	108	2.3
Chelmsford	103	2.2
Tewksbury	72	1.5
Lawrence	71	1.5
Nashua, NH	69	1.4
Other cities and towns	875	18.3
TOTAL	**4,776**	**100.0**

Source: 1990 U.S. Census

With only 14 percent of the Dracut workforce employed locally, Dracut residents must rely heavily on their automobiles - there are approximately 1.9 vehicles available in every household[2] - and the local street and regional highway network to reach their workplace destinations in nearby communities. Table 7-3 identifies the travel or access modes that were available and used in 1990 (a) by Dracut residents traveling to their workplaces, and (b) by those who resided elsewhere but worked in Dracut. In 1990, 97% of all employed persons who did not work at home in Dracut drove in an auto to their workplace. That reliance on the automobile remains in Dracut today.

Table 7-3
Journey-to-Work Travel Modes in Dracut

		Residents in Dracut		Employees in Dracut	
	Travel Mode	# Persons*	% of Total	# Persons*	% of Total
AUTO	Auto: Drive alone	11,015	83.5	2,794	73.1
	Carpool: 2-person	1,600	12.1	554	14.5
	3+ person	179	1.4	181	4.8
NON-AUTO	Bus	83	0.7	65	1.7
	Commuter Rail	70	0.5	-	-
	Taxi	18	0.1	5	0.1
	Bicycle	14	0.1	-	-
	Walked	142	1.1	164	4.3
	Other	78	0.5	58	1.5
	TOTAL	**13,199**	**100.0**	**122**	**100.0**

* Total includes all employed persons 16+ years old who do not work at home.
Source: 1990 Census and transportation data produced by the U.S. Bureau of Transportation Studies. Provided by the Data Center of the Metropolitan Area Planning Council (MAPC).

The Regional Highway System

The transportation system is one of the most important infrastructure elements influencing the pattern of development in a community. The accessibility provided by the proximity of a regional highway not only stimulates new development, but also increases the primary trade area for existing retail and other establishments. Similarly, the level of service provided by the transportation system within a community - typically measured by the peak period travel times and level of congestion on local streets - also influences the dynamics of land development. It is not uncommon for changes in arterial street level of service to lead to unstable land use patterns as the relative accessibility of different locations change.

That Dracut today is a medium-sized residential bedroom community is explained, in part, by the fact that no major regional highways pass through the Town or lie within easy access of its borders. State Route 3 (and

[2] According to the 1990 U. S. Census, the number of vehicles available per household in Dracut was as follows:

	# Vehicles					
	0	1	2	3	4	5+
# Households	408	2,731	4,037	1,220	441	155

Route 3A) lies to the west of Dracut and passes north-south through the region from the New Hampshire border to Route 128 in Burlington.[3] Dracut residents must travel through the Town of Tyngsborough to reach Route 3, or travel south through the City of Lowell (via the Lowell Connector) to access Route 3 at a location south of I-495. Interstate Route 93 lies to the east of Dracut and also travels north-south through the region. To reach I-93 from Dracut, motorists must travel through a residential area of Methuen. Similarly, Interstate Route 495 runs east-west to the south of Dracut, but can be accessed only by traveling through small retail districts and residential neighborhoods in the City of Lowell.

In summary, Dracut residents do not enjoy direct or ready access to any of the three limited access highways that service the transportation needs of the region. Similarly, non-residents seeking access to businesses and cultural areas in Lowell and scenic areas north of Dracut in New Hampshire must pass through Dracut to reach their destinations. This lack of direct access to the regional highway network, and its geographic location between other employment centers in the region, have had a pronounced effect on the type and intensity of development in Dracut.

The Existing Street System in Dracut

Just as the character of Dracut is affected by its connections with the regional highway system, so too is it heavily influenced by the configuration and condition of its local street system (see Figure7-1). An inventory of conditions on Dracut streets was obtained from the Massachusetts Highway Department (hereafter "MassHighway"). This Road Inventory File identifies the administrative bodies with jurisdiction over each street, the functional use of each street, as well as a host of other physical and operating characteristics.[4] A copy of the MassHighway Road Inventory File for the Town of Dracut has been provided to the Master Plan Committee under separate cover.

Jurisdictional Classification of Dracut Streets

The jurisdictional and functional classification of streets in the Town of Dracut are important to understanding how streets relate to one another, who uses them, and who exercises control over changes that might be necessary on them. Table 7-4 summarizes the functional type and mileage of streets in the Town of Dracut. As shown, there are presently a total of 145.12 miles of roadway in the Town of Dracut, consuming approximately 670.5 acres of land.[5]

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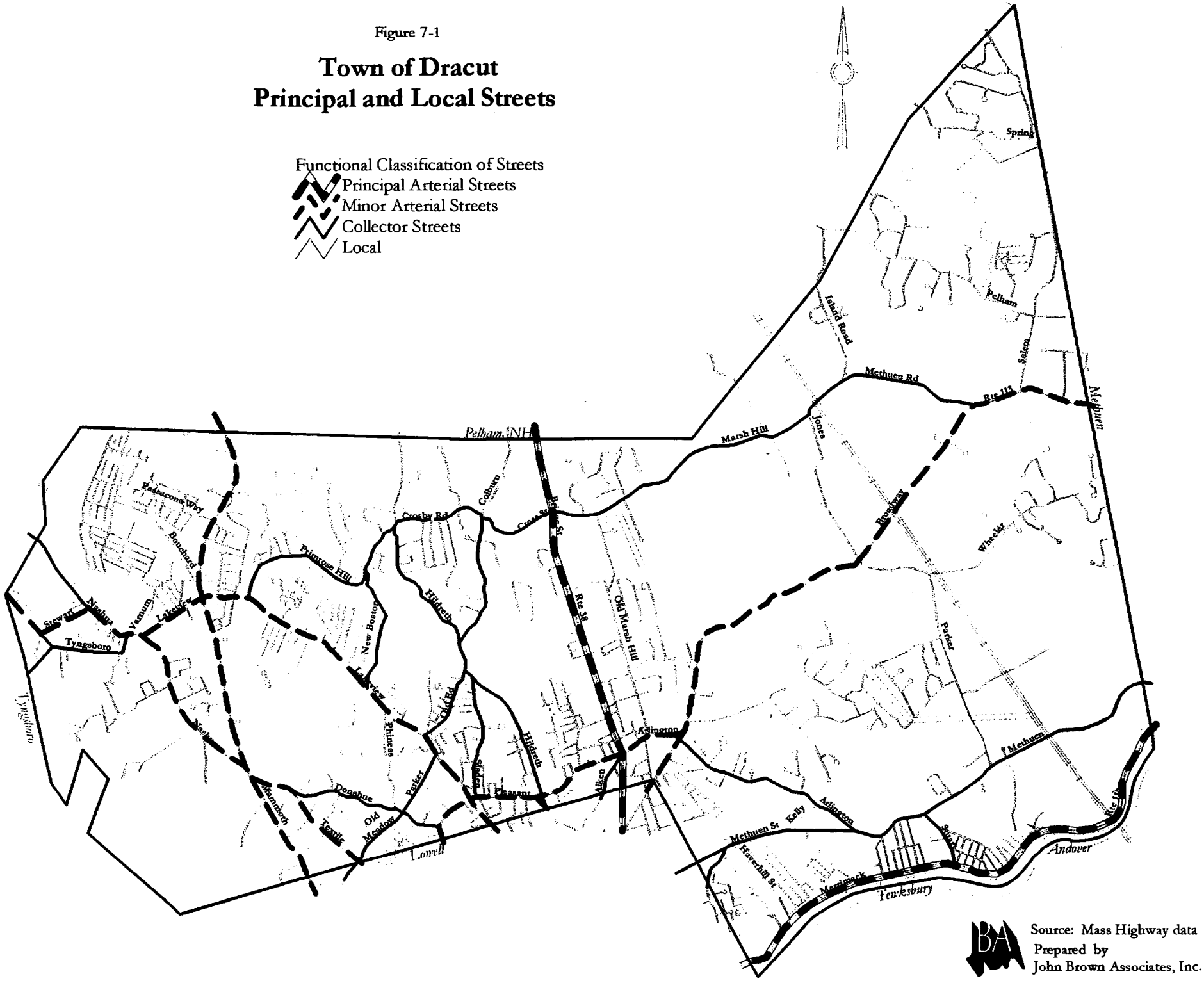
[3] As one of the most congested travel corridors in eastern Massachusetts, the Massachusetts Highway Department (MassHighway has targeted Route 3 for major improvements. Current MassHighway plans call for the addition of a single travel lane and breakdown lane in each direction along Route 3 for its entire 21 mile length - a project that is scheduled to begin in the year 2000 and take approximately 4-5 years to complete. See *Long-Range Transportation Plan for the Northern Middlesex Region,* September 1993, prepared by the Northern Middlesex Council of Governments for the Northern Middlesex Metropolitan Planning Organization. Also, *Environmental Assessment/Draft Environmental Impact Report* for the Route 3 North Transportation Improvements Project.

[4] Massachusetts Highway Department, Bureau of Transportation Planning and Development, *Road Inventory File.* The Road Inventory File is maintained by the MHD/BTP&D as an important transportation planning tool. It contains information on roadway mileage, conditions, and numerous other characteristics (a total of 57 identifying characteristics are available for each roadway segment).

[5] Based on 145.12 miles of road with right-of-way widths varying between 18 and 50 feet. The majority of roadway (60.3 miles) in Dracut has R.O.W. of 40 feet. Right-of-way (R.O.W.) refers to all publicly-owned land and includes the actual roadway, sidewalks, grassy areas, street trees, and public utilities.

Figure 7-1

Town of Dracut
Principal and Local Streets



Source: Mass Highway data
Prepared by
John Brown Associates, Inc.

Table 7-4
Classification of Dracut Street System

Functional Classification	Street Name	Mileage	Total Miles	Comments
Local Road	Townwide	106.34	**106.34 miles**	(1)
Principal Arterial Street	Bridge Street (Rt 38)	2.24		
	Merrimac Avenue (Rt 110)	3.20	**5.44 miles**	(2)
Minor Arterial Street	Arlington Street (Rt 113)	0.41		
	Broadway (Rt 113)	3.76		(2)
	Donahue Road	0.28		
	Lakeview Avenue	2.91		
	Mammoth Road	3.01		
	Nashua Road	1.50		
	Pleasant Street (Rt 113)	1.35		
	Riverside Street (Rt 113)	0.08		
	Stewart Street	0.34		
	Textile Avenue	0.59		
	Tyngsboro Road	0.31		
	Willard Street (Rt 113)	0.35	**14.89 miles**	
Collector Street	Arlington Street	1.32		
	Aiken Avenue	0.27		
	County Road	0.23		
	Crosby Road	0.59		
	Cross Road	0.49		
	Colburn Avenue	0.85		
	Hampson Street	0.24		
	Hildreth Street	2.07		
	Hovey Avenue	0.04		
	Marsh Hill Road	1.80		
	Methuen Road	1.21		
	Methuen Street	3.23		
	Nashua Road	0.53		
	New Boston Road	1.13		
	Old Meadow Road	0.41		
	Old Road	0.50		
	Parker Avenue	0.43		
	Primrose Hill Road	1.02		
	Sladen Street	0.77		
	Stuart Avenue	0.38		
	Tenth Street	0.28		
	Tyngsboro Road	0.66	**18.45 miles**	
	TOTAL STREET MILEAGE		**145.12 miles**	

(1) Of the 106.34 miles of local road, 90.31 miles are town-accepted roads. The Town of Dracut has not accepted the remaining 16.03 miles of road for ownership.

(2) This section of road in Dracut is owned and maintained by MassHighway, not the Town of Dracut. There are a total of only 7.31 miles of state roads in Dracut.

Within the geographical boundaries of Dracut, there are 7.31 miles of state numbered road - i.e., sections of Route 110 and Route 113 - that fall under the jurisdiction and control of the Massachusetts Highway Department. All other streets and roads within the Town borders - a total of 137.81 miles - are town-accepted roads or private. The Town of Dracut assumes primary responsibility for the ongoing maintenance and safe operation of all town-accepted roads, while MassHighway assumes responsibility for conditions and safety on state roads.

Functional Classification of Dracut Streets

All streets in Dracut are also classified on the basis of their functional use. The functional classification of a street is essentially a determination of the degree to which access functions are to be emphasized at the cost of the efficiency of movement, or discouraged to improve the movement function. As explanation, a street can serve two basic functions: it can provide *access* to individual parcels of land, or it can facilitate *movements* between various origins and destinations. A high level of access implies the existence of multiple driveways connecting the street with private property and making available part of the street for parking and loading. In contrast, a street that facilitates movement provides the capacity to move large quantities of vehicles and to do so at a reasonably high speed. These functions make competing demands on the street and thereby require that tradeoffs be made as to their relative importance.

As indicated in Figure 7-1 and Table 7-4, streets in Dracut fall into one of four functional classifications or categories: principal arterial streets, minor arterial streets, collector streets, or local streets. The tradeoff between access and movement associated with each of these categories is defined below in Table 7-5. As suggested by the definitions in Table 7-5, streets are designated as arterial streets because of the amount and kind of traffic that they are carrying, or because they provide direct connections between major traffic-generating nodes or trip generators and other major streets and freeways.

The overwhelming majority of streets in Dracut - 106.3 miles or almost 75% of its total roadway mileage - function as local or residential streets designed to provide access to individual residential parcels or neighborhoods. There are only two designated major arterial streets in the entire town: Bridge Street (Route 38) which runs north-south through the center of Dracut between Lowell and the New Hampshire border; and Merrimac Avenue (Route 110) which runs east-west along the Merrimac River in south Dracut between Lowell and the Methuen town line. By their location, these major arterials facilitate vehicle movements between Dracut and Route I-495 in Lowell and between Dracut and Route I-93 in Methuen. Relatively high levels of vehicular mobility are also provided in Dracut by numerous minor arterial streets, such as Route 113 (Pleasant Street, Willard Street, and Broadway) in south Dracut, and by Lakeview Avenue, Mammoth Road, Nashua Road, Stewart Street, and Tyngsborough Road in western Dracut. The Route 113 corridor serves travelers with origins and destinations in the directions of Lowell and I-495 and Methuen and I-93. The Lakeview Avenue and Mammoth Road corridors provide access for travelers between Lowell and the New Hampshire border, and to a lesser extent to Tyngsborough and Routes 3 and 3A.

There are also 18.45 miles of collector streets located primarily in central and east Dracut where development densities are lowest. These collector streets carry traffic from Dracut's residential neighborhoods to the above arterial streets. Methuen Street and Arlington Street exist as the primary collector streets in southeast Dracut; Hildreth Street serves central Dracut; and the interconnected Primrose Hill Road/Crosby Road/Cross Street/Marsh Hill Road/Methuen Road collect traffic from local street across the northern portion of Town. As major collectors, these streets not only intersect with and carry traffic from local streets to the arterials, but are also used by through travelers[6].

[6] Local traffic is generated by land uses located within the community. Through traffic represents trips which

Table 7-5
Functional Street Classification System

Principal Arterial:	A principal arterial - such as Route 3 - is intended to provide a high degree of mobility and a low degree of land access. High capacity is obtained by providing wide cross-sections and/or by eliminating intersections by grade separation. In contrast with minor arterials, principal arterials serve longer trips and, therefore, should provide for higher speeds and levels of service. Principal arterials will typically interconnect major residential communities and other large activity centers within the urbanized area.
Minor Arterial:	Minor arterials are streets and roadways that also provide high levels of mobility and the low degrees of land access. However, most minor arterials will be at-grade and may intersect with a number of other public streets. The minor arterial system interconnects with and augments the major arterial system. It accommodates trips of somewhat shorter length and at lower operating speeds.
Major Collector:	Major collectors are streets that penetrate neighborhoods, collecting traffic from local streets in the neighborhoods, and channeling it into the arterial systems. A fair amount of through traffic and/or local bus routes may be carried on a major collector street.
Minor Collector:	Minor collectors are similar to major collectors but they are more neighborhood penetrating and have lesser amounts of through traffic. In most cases, bus routes on minor collectors will be limited to school buses.
Local Streets:	Local Streets are streets that primarily provide direct access to abutting land and access to the higher systems. They offer a low level of mobility and usually carry no bus routes. Service to through traffic is deliberately discouraged.

Despite the high mileage of local streets in Dracut, there are presently no streets in the town that enjoy the status of being designated scenic roads under the provisions of Massachusetts General Laws, Chapter 40, Section 15C. The designation of a street as a "scenic road" is often done to protect their scenic and historic qualities, and preserve the rural character of the area through which they pass. By virtue of this designation, any repair, maintenance, reconstruction, or paving along local roads which involves the cutting or removal of trees, or the destruction of any portion of a stone wall, requires town approval.

It is important that a community have a street system that includes a hierarchy of street types designed to accommodate through traffic, yet is connected to residential areas and neighborhoods by a coordinated system of collector and local streets. Local streets should connect with collector streets which, in turn, should carry traffic to arterials. When local or residential streets are properly linked to the larger traffic-carrying streets (collectors and minor arterials), local safety is enhanced and the chances of a street's use by through traffic ("short-cut") is minimized. While the basic configuration of the Dracut street system is sound, several conditions will deserve future monitoring.

First of all, comparison of the functional classification of roads in Dracut with the town zoning map reveals that existing major and minor arterial streets traverse those areas of the town that are most heavily populated

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have no origin or destination in the community – i.e., trips that travel completely "through" the town in order to reach their destinations. Through trips, rather than local trips made by residents of the area or workers and customers of local activity centers, are the primary causes of congestion in many communities.

(residential zone R-3) and/or zoned for business uses. This same comparison indicates that there are numerous local or residential streets connecting directly to these arterials - a condition that encourages cut-through traffic on local streets to occur when congestion arises on the arterials. As peak period congestion increase in these arterial corridors (e.g., Lakeview Avenue), the prevalence of through traffic on local streets may increase and warrant either (a) improvements to traffic flow on the minor arterial, and/or (b) the implementation of neighborhood traffic calming measures.

Second, Primrose Hill Road, Crosby Road, Marsh Hill Road, and Arlington/Methuen Streets currently function satisfactorily as collector streets 'collecting' traffic from the less densely populated areas in central and east Dracut. As growth in the areas served by these roads occurs and heavier traffic volumes become more prevalent, it may be desirable to construct a new arterial street onto which through traffic could be re-routed. Alternatively, consideration might be given to making changes in the physical design and capacity of the affected collector streets to better accommodate the expected loads of through traffic.

Layout and Design of Dracut Streets

In addition to functional class, the Road Inventory File for Dracut also describes the basic geometry of each street or street segment in the town in terms of such items as: (a) the width of the right-of-way (R.O.W.)[7]; (b) the number of travel lanes; (c) pavement and shoulder width and type; (d) the structural condition of the road; and (e) the existence of sidewalks. Consistent with its residential character, there are no more than two travel lanes of varying widths on any street in the Town of Dracut.

Table 7-6 below summarizes and compares: (a) the street geometry that exists on the different types of streets in the town with (b) the right-of-way width and street design standards presently required under the Town of Dracut's subdivision regulations, and (c) street design standards that have been adopted in other communities.

Street design standards are an effective and important tool available to communities to control the type and speed of vehicles on their street system and to promote a desired "character." As shown by the comparisons in Table7-6, the different functional classes of streets in Dracut are relatively narrow given their functional purpose[8]- a condition that reflects their historical origin while also promoting relatively slow travel speeds for the volume of vehicles being moved. Despite their relatively narrow widths, the majority of existing streets in the Town of Dracut are adequate for the functional purpose they serve.

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[7] Right-of-way refers to all publicly-owned land and thereby incorporates the roadway, sidewalk, grassy area, street trees, and/or public utilities.

[8] See Homburger, W.S., et al, *Residential Street Design and Traffic Control*, ITE: Prentice Hall, 1989, Chapter 2, "Design of Local Streets and Traffic Characteristics," p. 23.

Table 7-6
Comparison of Street Conditions in Dracut with Street Design Standards

	Street Classification	Right-of-Way Width	Pavement Width
Typical Design Standard [1]	Local	50-60'	22-36'
	Collector	70'	36-40'
	Arterial	-	-
Existing Streets in Dracut [2]	Local	35'-40'	18'-22'
	Collector	40'-60'	18'-24'
	Arterial (minor)	40'-60'	22'-26'
Dracut Subdivision Regulations [3]	Local	50'	30'
	Collector	60'-70'	34'
	Arterial	70'	42'

1 Institute of Transportation Engineers, *Recommended Guidelines for Subdivision Streets,* Washington, D.C., 1984.

2 See Appendix A, Road Inventory File, and Table 3. Figures are representative of majority of streets in the functional class.

3 Dracut Planning Board, *Rules and Regulations Governing the Subdivision of Land in Dracut, Massachusetts,* with amendments and revisions through March 1998, Section V(B), Street Design Standards. ROW width for minor collectors shall be 60 feet; for major collectors 70 feet. Also, Town of Dracut, *Design and Construction Standards,* Street Cross Sections. Collector street design assumes two 13' travel lanes and 4' shoulders; arterial street width assumes two 13' travel lanes and 8' shoulders on both sides of road.

Table 7-6 also indicates that the Town's existing subdivision regulations for street design require new subdivision streets in Dracut to be significantly wider than older streets. Although consistent with sound street design practice, the wide rights-of-way, long sight distances, and large radii curves that exist on these new subdivision streets facilitate driving at speeds that is not always compatible with the pedestrian-oriented, "rural" atmosphere that may be desirable on a local street. Excessively wide streets also present a formidable barrier for pedestrians to cross, especially by the elderly and children. The Town of Dracut may want to consider revising its existing subdivision regulations so as to (a) distinguish between different types of roads, and (b) reduce the width of the required street cross section for local streets.

Traffic Congestion and Safety on Dracut Streets

Average daily traffic counts available from the Northern Middlesex Council of Governments (NMCOG) indicate the existence of relatively high daily traffic volumes on all of the arterial streets in Dracut. As indicated in Table 7-7, available traffic counts taken on the arterial streets in Dracut indicate daily volumes ranging from roughly 8,000 vehicles per day up to 19,000 vehicles daily. While there is ample capacity now on these types of streets to efficiently move this traffic during peak as well as off-peak periods, the peak period capacity of Lakeview Avenue and the north section of Mammoth Road may soon be approached. Given this volume of daily traffic, peak hourly traffic volumes on Lakeview Avenue during the AM and PM peak periods of commuter activity is estimated to be approximately 1,800 vehicles per hour - a substantial volume of 2-way traffic for a 2-lane arterial street.

Table 7-7
Average Daily Traffic (ADT) Volumes at Selected Locations - Dracut, MA

Class of Road	Location	ADT	Year
Principal Arterial	Bridge Street (Rt 38) @ Lowell City Line	14,000	1996
	Bridge Street (Rt 38) @ South of Marsh Hill Rd	11,960	1993
	Bridge Street (Rt 38) @ NH State Line	10,700	1994
	Merrimac Ave @ Lowell City Line	13,200	1991
	Merrimac Ave (Rt 110) West of Haverhill Street	12,900	1991
	Merrimac Ave (Rt 110) West of Kilby Street	12,200	1991
Minor Arterial	Arlington Street (Rt 113) West of Broadway Rd	10,900	1994
	Broadway Road (Rt 113) North of Arlington St.	10,000	1994
	Broadway Road (Rt 113) @ Methuen Town Line	12,700	1997
	Lakeview Ave Between Parker & Sladen Streets	19,500	1992
	Lakeview Ave West of Mammoth Road	7,800	1994
	Lakeview Ave East of Nashua Road	8,400	1992
	Mammoth Road South of Lakeview Ave	12,400	1994
	Mammoth Road North of Lakeview Ave	17,300	1996
	Mammoth Road @ NH State Line	9,000	1991
	Nashua Road between Park & Fairview Ave.	8,100	1988
	Pleasant Street North of Hampson Street	13,100	1992
Collector	Marsh Hill Road West of Jones Ave.	2,800	1993

Source: NMCOG, Regional Traffic Counts from 1987 to 1997.

Although this volume of traffic does not exceed the capacity of Lakeview Avenue[9], the heavy and steady flow of traffic in the corridor during peak hours makes turning movements at many of the intersecting roadways and curb cuts difficult and pedestrian movements along and across Lakeview Avenue potentially very hazardous.

In anticipation of worsening congestion, the Town of Dracut has wisely initiated a corridor improvement project along Lakeview Avenue. Traffic volumes in the other major travel corridors in Dracut do not appear at this time to warrant comparable improvements. However, it will be appropriate during subsequent phases of this master plan study to evaluate the impact that build-out is likely to have on traffic in these corridors.

Transit Services in Dracut

As suggested by previous Table 7-3, limited public transit services are available to Dracut residents. The Lowell Regional Transit Authority (LRTA) provides bus service over a single fixed route that travels along Pleasant Street and Lakeview Avenue north into Tyngsborough. Hourly weekday and (limited) Saturday bus service on the "Dracut-Tyngsborough" or DT bus line extends from the Downtown Transit Center on Paige

[9] The capacity of a street is a measure of its ability to accommodate a moving stream of vehicles. Roadway capacity represents the upper limit of the number of vehicles that can pass a given point in a specified time period under prevailing traffic and environmental conditions (e.g., number of travel lanes, lane widths, grades, conflicts, traffic composition). When the capacity of a roadway is exceeded, traffic will no longer flow freely. On the contrary, queues will form, the frequency of stop-and-go conditions will increase, slower travel times will result, and increase accident exposure will exist.

Street in Lowell north on Bridge Street (Rte. 38) into Dracut before running west on Greenmont Avenue and Pleasant Streets to Lakeview Avenue and points north. Before entering Tyngsborough, this bus route loops onto Varnum Avenue, Nashua Road and Tyngsborough Road in Dracut. The LRTA also provides fixed route bus service along sections of Arlington Street and Willard Street to Dracut Village Square and Post Office. Scheduled service on the Christian Hill" or 01 bus line also originates from the Downtown Lowell Transit Center and is provided weekdays as well as on Saturday (limited service). This fixed route bus service is presently provided by the LRTA to and through those residential neighborhoods in Dracut having the highest residential densities allowed within the town. Although the need for this minimum level of local bus service is expected to continue in the future,[10] it is unlikely that residential densities in other areas of Dracut will warrant local bus services under any build-out scenario in the future.

In addition to this fixed route bus service, the LRTA also provides "Road Runner" paratransit service to Dracut residents. This "Road Runner" bus service consists of dial-a-ride and pre-scheduled paratransit services and is available to Dracut residents who are elderly (60+ years of age) or handicapped for all types of trip purposes. There are also several private transportation providers (e.g., Dracut Council on Aging) in Dracut which provide comparable bus/van services.

Commuter rail service is not directly available to Dracut residents and employees. To avail themselves of commuter rail service, Dracut residents must travel by auto or bus to the MBTA's Lowell commuter rail line which terminates at the Gallagher Transportation Terminal in downtown Lowell.

Pedestrian Access in Dracut

While the capacity of the street circulation system, and the availability of alternative modes of transport are important components of a master plan, so too are the special needs of pedestrians, joggers and bicyclists. According to the Dracut Open Space and Recreation Plan,[11] "the only trails accessible to the public for recreational activities are located in the State Forest in western Dracut." Unfortunately, the trails at the Lowell/Dracut/Tyngsborough State Forest[12] are not well maintained nor is their availability for hiking or walking well publicized. There are no other known trail or path systems in the Town of Dracut that are not on private lands. Yet, "trails (hiking, biking) top the list of facilities most desired by residents, followed by basketball courts and tennis courts."[13]

In recognition of this deficiency, the Dracut Open Space and Recreation Planning Committee has established as one of its highest priority goals to, "Promote opportunities for the local and regional linkage of open space

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[10] A minimum level of local bus service (20 daily bus trips in each direction) or one bus per hour is often provided in residential area averaging 4-5 dwelling units per acre. Typically, these residential densities correspond to gross population densities of 3,000 - 4,000 people per square mile. It is believed that residential densities approaching this level exist in the residential R-3 zoned areas of Dracut.

[11] *Town of Dracut Open Space and Recreation Plan*, prepared by the Northern Middlesex Council of Governments, July 1996.

[12] The Lowell/Dracut/Tyngsborough State Forest is owned and managed by the Massachusetts Department of Environmental Management (DEM) and used for walking, hiking, jogging, horseback riding, bicycling, cross country skiing, snowmobiling, and hunting. Approximately 527 acres of the 1,040 acre Lowell/Dracut/Tyngsborough State Forest lie in the southwest corner of Dracut.

[13] Ibid., p. 48.

and development of greenway corridors." As part of its five year "action plan," it is recommended that a Trails Committee be formed in Dracut and that work begin to develop a system of trails and greenways for the Town. Specific recommendations call for the development of a trail system that would linking open space and recreational areas across the scenic region of East Dracut - perhaps along the pipeline or other easements - and for additional involvement by the Town in improving trail facilities at the State Forest. There may also be opportunity for the Town to become involved in efforts underway by the Merrimack River Watershed Council to develop a section of the Merrimack River Trail which would run between the Merrimack River and Route 110 by the Kenwood neighborhood along the southern border of Dracut. By acquiring land for development of a riverwalk along the shoreline of the Merrimack River, the Town of Dracut could provide its residents with an important link between the existing walk in Lowell and future walks in Methuen and Lawrence.

7.2 ASSESSMENT OF TRANSPORTATION FACILITIES AND SERVICES

Dracut residents rely heavily on their automobiles and the local/regional street system to meet their transportation needs. Despite that fact that very few new roads have been built in Dracut over the past 100 years, residents presently enjoy relatively high levels of accessibility both within the town and the region. With few exceptions, the transportation system available to Dracut residents provides adequate access to most user groups and satisfies the majority of community needs. More specifically:

- Dracut residents enjoys ready access to three regional highways - Route 3 in Tyngsborough, Route I-495 in Lowell, and Route I-93 in Methuen - and many avail themselves of these highways to reach their workplaces. Limited fixed route bus services are also available to residents housed in the most densely populated districts of town, and commuter rail service to Boston can be accessed in nearby Lowell.

- The existing street and circulation system in the Town of Dracut is generally well-designed. Local or residential streets are linked to the larger traffic-carrying streets (collectors and arterials) in a way that facilitates good access to other parts of the community and region. Two potential problem areas exist, however. First, there are a number of local or residential streets connecting directly to the arterial street system in west Dracut. As peak period congestion increases on these arterials (e.g., Lakeview Avenue), "unwanted traffic" on residential streets - i.e., traffic using the streets as shortcuts, detours, or overflow from a nearby congested arterial - may become an increasing concern and warrant either (a) improvements to traffic flow on the minor arterial, and/or (b) the implementation of neighborhood traffic calming measures. Second, Primrose Hill Road, Crosby Road, Marsh Hill Road, and Arlington/Methuen Streets currently function satisfactorily as collector streets "collecting" traffic from the less densely populated areas in central and east Dracut. As growth in the areas served by these roads occurs and heavier traffic volumes become more prevalent, it may be desirable to construct a new arterial street onto which through traffic could be re-routed. Alternatively, consideration might be given to making changes in the physical design and capacity of the affected collector streets to better accommodate the expected loads of through traffic.

- With the exception of heavy peak period traffic flows on Lakeview Avenue and the north section of Mammoth Road, Dracut does not appear to experience consistent periods of heavy traffic congestion on its local streets. The traffic generated by the current pattern and intensity of development in Dracut is highly compatible with the size, configuration, and location of the existing street system. The heavily residential character of the community - In combination with the relatively small size of its business

districts - generates moderate volumes of traffic and congestion on the local street network. With the exception of Lakeview Avenue where major street improvements are planned, ample capacity currently exists on the local street system to accommodate peak traffic loads.

- The geometry of existing streets in the town reflects an historical predisposition toward the construction of individual streets with relatively narrow pavement widths and travel lanes, regardless of their functional classification and use. Despite their relatively narrow widths, the majority of existing streets in the Town of Dracut are adequate for the functional purpose they serve. Town requirements for new subdivision street design, however, encourage local streets that are considerably wider and straighter than older streets. To discourage excessive speed on local streets, the Town of Dracut may want to consider revising its existing subdivision regulations so as to (a) distinguish between different types of roads, and (b) reduce the width of the required street cross section for local streets.

- While auto accessibility is relatively high in the Town of Dracut, the needs of pedestrians (walkers, joggers) and bicyclists (also rollerbladers) are not currently being met. Many major streets lack sidewalks. In addition, the only trails accessible to the public for recreational activities are located in the State Forest in western Dracut. There are no other known trail or path systems in the Town of Dracut that are not on private lands. To address this deficiency, the Dracut Open Space Plan calls (a) for the development of a trail system that would link open space and recreational areas across the scenic region of East Dracut - perhaps along the pipeline or other easements; and (b) for additional involvement by the Town in improving trail facilities at the State Forest. Opportunity also exists for the Town to become involved in efforts underway by the Merrimack River Watershed Council to develop a section of the Merrimack River Trail that would run between the Merrimack River and Route 110 by the Kenwood neighborhood along the southern border of Dracut.

All in all, the existing transportation system in Dracut appears to be in reasonable "balance" with its land use plan. However, the future development and occupancy of currently vacant or underutilized land in the town will generate new vehicle trips on the town street system, *may* increase vehicle congestion, and *may* create additional points of vehicle/pedestrian conflict. By controlling the location, type and intensity of land uses in the town - through the Town zoning ordinance - it becomes possible to exert some control over the traffic volumes that could contribute to future problem areas.

7.3 TRANSPORTATION GOALS

The following basic transportation goals have evolved from the community survey, neighborhood meetings, and public forums:

1. Construct and maintain a street system that provides acceptable overall and peak hour levels of service on all roadway segments and at all major intersections.

2. Encourage the development of a balanced transportation system that includes not only the street circulation system, but also provides Dracut residents with adequate public transportation services, pedestrian and bicycle facilities.

3. Promote safety in residential areas by separating vehicle, pedestrian, and bicycle movements whenever possible.

7.4 TRANSPORTATION RECOMMENDATIONS

Arterial Streets

As stated in the Guide Plan for Future Land Use, it is recommended that future industrial growth be concentrated along Route 113 in East Dracut. It is anticipated that sufficient capacity will exist in this corridor to accommodate the needs of businesses that might locate there. In other areas of the town, commercial and industrial development will be sufficiently dispersed so as not to warrant increases in roadway capacity - i.e., new streets or additional travel lanes on existing streets. Mammoth Road is heavily traveled but anticipated growth in residential development in the corridor is unlikely to warrant increases in street capacity, although future growth in New Hampshire may increase volumes. Lakeview Avenue is the only other congested corridor in the town and it is presently targeted for improvements. No new arterial streets are recommended for construction.

Access Management Guidelines on Major Arterials

The traffic congestion and conflicts that exist on Lakeview Avenue are the primary result of poor access design and control. The town must discourage the location of multiple, closely spaced access driveways along major streets. The Town of Dracut Zoning By-Laws and special permit requirements call for a review of development projects by appropriate town boards and professional staff. It may be desirable to establish definitive access management guidelines that would be applied to all new developments sited along a major arterial. These guidelines would establish minimum separation between driveways and traffic signals and median openings; require the safety of turning movements into and our of properties; require turning/ acceleration/deceleration lanes where necessary; and require the timing and coordination of traffic signals in major corridors (if appropriate).

Residential Street Location and Design

It will be important to maintain a functional street hierarchy when locating new residential subdivision roads in areas not currently well served by collector streets. In order to keep through traffic off of local residential streets, new residential streets must connect with collector streets which, in turn, should intersect with larger arterials. Approvals of new subdivisions should be conditioned on the proper location of their access road(s), as well as appropriate design of street cross-section.

Crosby Road/Marsh Hill Road/Methuen Road should be monitored closely as it may become more of a collector road than a local road with increased residential development in East Dracut. It may be necessary to widen and/or improve the geometry of this east-west access road if substantial new residential development requires access onto these roads.

Many residential streets in the town are already in violation of this functional hierarchy guideline. Because they intersect directly with higher order streets, they may become candidates for cut-through traffic. To deal with these situations, consideration should be given to the adoption of a town-wide traffic calming policy that describes the procedures by which residents can initiate a traffic calming study and the range of traffic calming techniques that will be evaluated.

Sidewalk Expansion Program

An environment that ensures pedestrian safety should be created by providing sidewalk connections along all congested streets between densely populated residential areas and nearby businesses and other major destinations (e.g., schools, recreation areas). Annual contributions to a sidewalk fund should be made so new or improved sidewalks can be constructed annually in compliance with a town-wide, sidewalk capital improvement plan.

Expansion of Non-traditional Transit Services
A single fixed-route bus service currently operates along the most densely populated streets in south and west Dracut. Residential densities in other areas of the town will not support additional fixed route bus services upon build-out. However, as the elderly and school populations increase in the town, off-peak van and minibus shuttle services like those offered by the LRTA and Council on Aging will almost certainly need to be expanded to service senior living facilities, schools, and other activity centers.

Establish Dracut Trails Committee
An expanded network of bikeways and walking trails should be established throughout the Town as an alternative mode of transportation and recreation. To coordinate with the efforts of adjoining communities, and to solicit special funds, a Dracut Trails Committee should be established to identify and prioritize a system of trails and greenways. The increase in residential development anticipated in the Kenwood neighborhood along the Merrimack River should be coordinated with development of a path system ("Merrimack River Trail") that connects with the pipeline or other easements in East Dracut.

Regional Planning Initiatives
Economic growth in Dracut is hampered by the lack of a direct connection to Routes 3, I-93, or I-495. Conditions on these regional highways also affect traffic on Dracut streets as motorists find alternates routes to avoid congestion. The Town of Dracut must take an especially active role in promoting the expansion of Route 3 so that the functional integrity of that highway can be maintained. Representatives of the town should also continue to be active participants in the planning process of the Northern Middlesex Council of Governments, and encourage plans in neighboring communities that would improve access from Dracut to the regional highways.

Section 8:
IMPLEMENTATION PLAN

Section 8: IMPLEMENTATION PLAN

The Implementation Plan outlines short term and long term municipal actions needed to achieve the objectives of the Master Plan. Included are scheduled expansions or replacements of public facilities, traffic improvements and the anticipated costs associated with accomplishment of such activities. The Implementation Plan also specifies the process by which the community's regulatory structure should be amended so as to be consistent with the Master Plan.

The Implementation Plan translates generalized goals and objectives of the Master Plan into specific actions within a suggested time frame. It is based on a strategy of priorities matched to the realities of Dracut's ability to move along this course. A plan of this kind gives the Master Plan Committee, Planning Board, Board of Selectmen, Conservation Commission, and other Town bodies and officials an overview of what needs to be done and a timeline for completion. It is not a rigid directive but a set of guidelines for the possible, under the best of circumstances. Thus, the time frame is only suggestive and should be reviewed and modified periodically on the basis of actual performance.

8.1 REGULATORY ANALYSIS

The principal regulatory controls related to land use and development are Dracut's Zoning By-Laws, Zoning Map and Subdivision Rules and Regulations which were evaluated as part of the Master Plan review process. The Zoning By-Laws are well organized, comprehensive and clear. Although we recommend some specific Zoning By-Law changes to improve certain aspects of master plan implementation, the basic structure of the By-Laws is sound. In order to implement the Master Plan recommendations, a number of zoning map changes are recommended.

Review of Dracut's Zoning By-Laws

The Town's Zoning By-Laws are authorized under Chapter 40A of the Massachusetts General Laws. Any changes to the Zoning By-Law or Zoning Map require a two-thirds affirmatory vote of Town Meeting after a public hearing by the Planning Board.

The By-Laws are presented in four major sections with a table of contents at the beginning. The four major sections and important subsections are as follows:

1.00 Purpose, Authority and Procedure
- 1.10 Authority and Purpose
- 1.11 Administration
- 1.13 Board of Appeals
- 1.14 Amendments
- 1.15 Appeals
- 1.16 Special Permits
- 1.17 Other Laws
- 1.18 Validity

2.00 District Regulations
- 2.10 Establishment of Districts
- 2.11 Regulation of Uses
- 2.12 Intensity of Use
- 2.13 Flood Plain and Floodway Districts
- 2.14 Wetland and Water Conservancy Uses District
- 2.16 Nonconforming Lots, Uses, and Structures

3.00 General Regulations
- 3.10 Parking and Loading
- 3.11 Sign Regulations
- 3.12 Soil, Vegetation, Rock, and Gravel Removal
- 3.14 Buffering, Screening and Grading
- 3.15 Environmental Protection Standards

4.00 Special Regulations
- 4.10 Special Permits – Major Business Complex
- 4.11 Special Permits – Major Industrial Complex
- 4.12 Special Permits – Multi-Family Development
- 4.13 Special Permits – Fairs, Carnivals and Similar Events
- 4.14 Special Permits – Open Space Residential Development (Cluster Zoning)
- 4.15 Special Permits – Residential Golf Course Planned Development

Generally speaking, the Dracut Zoning By-Laws are well-organized and technically sound.

The following improvements to the Zoning By-Laws are recommended:

1. The By-Laws would benefit from better use of graphic techniques to make it easier to read, including better typefaces, and use of bold headings, italics, fonts, underlining, etc. A smaller, clearer font would also reduce the number of pages in the By-Laws.

2. There is no separate section or subsection that defines the technical words and phrases in the By-Laws. There are definitions included in Section 2.11.40 (Principal Use Definitions) and Section 3.11.20 (relating to signs). Section 2.12.40 (Methods for Calculating Dimensional Requirements) contains good definitions of dimensional requirements, but does not cover such terms as gross floor area, floor area ratio, dwelling unit density, and other important words and phrases. It is recommended that all definitions be set forth in a separate definitions section of the By-Laws.

3. There is some confusion about which maps to consult for flood plain and floodway information. The references in Section 2.12.22 and Section 2.13.00 should be resolved.

4. Consideration should be given to reducing the requirement for parking for "Business and Professional Offices" in Section 3.10.24 (Table of Off-Street Parking Requirements). The current requirement is one space per 200 square feet of gross floor area. A more realistic requirement (which would still be adequate) would be one space per 250 or 300 square feet of gross floor area. Medical and dental office would remain at one space per 200 square feet.

   Although parking requirements can be reduced during the special permit process, reduction in

the parking requirement for multifamily dwelling designed specifically for seniors should be considered. The current requirement of two units per acre could be reduced to 1.5 units per acre to help to reduce the cost of such housing.

5. Consideration should be given to eliminating the detailed boundary descriptions of changes to the Zoning Map, which are included at the rear of the Zoning By-Laws. These could be referred to by reference in a separate document available in the Town Clerk's office.

6. The Town should consider the option for non-criminal enforcement of the Zoning By-Laws under Chapter 40, Section 21 of the Massachusetts General Laws by the issuance of tickets for violation. This would then be stated as an option of the Town in Section 1.11.10 (Enforcement) of the By-Laws.

Subdivision Rules and Regulations

The Town's Subdivision Rules and Regulations regulate the manner in which land is subdivided in the town, within the limits authorized by Chapter 40, Section 81, of the Massachusetts General Laws. New or revised subdivision regulations may be adopted by the Planning Board after a public hearing. We have reviewed the Town's Subdivision Rules and Regulations and find them to be meeting reasonable standards for their purpose. The Town may wish to include more specific regulations related to tree cutting on lots, so as to preserve desirable trees of specific size and type, where possible, and to avoid wholesale cutting of trees.

8.2 OTHER GROWTH MANAGEMENT AND REGULATORY MECHANISMS

Implementation strategies focus on zoning by-law modifications, subdivision control revisions, and urban design recommendations. The following strategies outline mechanisms to allow Dracut to recapture costs associated with providing Town services, and to relate new development approvals to new facilities or infrastructure required to service the development. While we have summarized some of the legal issues associated with these mechanisms, a fuller and more detailed review is required by Dracut's Town Counsel before detailed solutions can be developed by the Town.

User Fees

Constrained by the limitations of Proposition 2½, voter resistance to increased taxes and reductions in Federal assistance, local governments in Massachusetts are exploring alternative funding sources and mechanisms to pay for the impacts of new development. User fees (fees assessed for goods and services that a governmental body provides such as recreation and refuse collection) have become extensively used by local governments.

User fees are not feasible for all municipal services. Water and sewer fees, however, are examples of user charges that can be established to cover not only direct costs of providing service, but new connections or hook-ups. In general, rates for new water and sewer services can be established on the basis of expected community growth levels and upon a projected costs basis for new capital improvements for water and sewer lines.

Dracut's Town Counsel should be consulted to ascertain that the Town has the authority to implement/increase user fees. Many fees have limits set by State law. However, State legislation has broadened municipal options by increasing fees limits or allowing local officials to set fees and charges (see The Review Fees Statute, Chapter 593 of the Acts of 1989).

User fees or connection charges are always subject to attack on the theory that they are, in fact, disguised taxes. In general, the Massachusetts courts have deferred to the municipality's characterization of such connection charges as a fee. However, the true nature of such a charge must be determined by its operational effect. Massachusetts Case Law has provided some direction on whether a local charge is a valid user fee or an illegal tax and this should be considered by Dracut's Town Counsel in reviewing any new or modified user fee being proposed.

Impact Fees

Impact fees are normally established in order to compensate a municipality for the cost of providing specific services, and not to raise general revenue. It is a regulatory mechanism for deriving public benefits from either all as-of-right new development (this is without thresholds), or from development above a specific threshold in connection with the grant of a discretionary special permit where, in effect, some density or use incentive is offered in return for the provision by the developer of an appropriate amenity (a public benefit either "in kind" or payment of fee). The first approach of impact fees for all new development is almost certainly not now authorized under existing Massachusetts law.

The second approach in connection with the granting of a special permit appears to have some authority under Massachusetts General Laws, Chapter 40A, the Massachusetts Zoning Act, although there are no clear statutory or case law guidelines on which to base a legal defense. A number of municipalities have some form of "in kind" exactions (such as the provision of affordable housing units) in connection with a special permit use. The basis for these exactions were the provisions of Section 9 of Chapter 40A, the Massachusetts Zoning Act, which provides that special permits may authorize increases in density or intensity of use provided that the applicant, as a condition of the grant of the special permit, provides certain amenities, including "housing for persons of lower or moderate income, traffic or pedestrian improvements ... or other amenities." However, Massachusetts courts have not passed upon, or approved, local ordinances contemplating the payment of fees, rather than provision of actual "amenities" in the context of this language.

Massachusetts has not yet adopted direct statutory authority to create such an impact fee system, although other states such as Florida have widely used impact fees. From the Florida impact fee case standards, the methodology required to establish a legally defensible impact fee system includes the following:

- The municipality should establish a capital budget program to:

  - Justify the need for the specific improvement (i.e., school, road, park, water or sewer extension, etc.).
  - Determine the realistic cost for the improvement.

- Develop a fair and reasonable cost allocation method to share the costs equitably.

- Establish a separate or so-called "enterprise" fund to hold the fees until spent.

- Build the facility or improvement necessitated by the development within a reasonable time (say five years) or return the funds to the developer.

By outlining this approach, we are not necessarily suggesting that Dracut should immediately adopt an impact fee system based on the foregoing. Several pieces of proposed legislation are now pending before the General Court which would authorize impact fees of various types. At such time as one of these proposals becomes law, the Town would have at its disposal a form of authority to adopt an impact fee system which would legally be defensible.

8.3 CAPITAL BUDGETING

The Town of Dracut has a well organized capital budgeting program administered by the Town Manager, in cooperation with all of the various Town departments and agencies and the Capital Planning Committee. Each year a Capital Improvement Program is prepared in the context of a five year judgment of need by the Departments and an annual budget target which is determined within the Town's Five Year Financial Plan.

Many of the recommendations of the Master Plan, especially community facilities such as schools, parks, open space and other facilities either are now or will eventually be incorporated into the long range Capital Improvement Program as they gain acceptance of the Departments and the citizens of Dracut. A review of the Town's bonded indebtedness indicates that the Town will have the capacity to bond the projects recommended by the Master Plan as the existing debt is reduced.

Some towns choose to separate larger projects with substantial fiscal impacts to the Town from smaller projects which may be grouped as "budget items" rather than "capital improvements." Capital improvements have, for example, been defined in some communities as "projects with a cost in excess of (say $100,000) and a life in excess of (say 10 years)." These could also be termed "long term capital improvements."

8.4 OPEN SPACE ACQUISITION

A number of methods of possible open space preservation are outlined in Section 4, Environment and Open Space, including direct purchase, easements, conservation trusts, agricultural preservation. The preservation of open space is a key aspect of the Master Plan and has important future implications to the Town's future fiscal health as well as the obvious environmental benefits.

The Town may wish to consider a number of means of financing open space "landbanking" though the imposition of a transfer tax on real estate for the purpose of open space acquisition. Another more modest method of accumulating funds for open space acquisition is through the establishment of an annual appropriation to an "open space acquisition account" by the Annual Town Meeting. The purpose of this approach is to insure that the Town has available funds to act if specific parcels of open space become available, if state or federal funds become available and

require matching funds, or if options or appraisals on specific parcels are needed.

8.5 LOCAL PLANNING CAPACITY

Dracut is a well-run community, with dedicated elected officials, town committee members, department employees, and the Office of the Town Manager providing overall management. The Town currently does not have a position or department responsible for day-to-day planning activities, although the Town Manager's office provides valuable assistance to all Town departments and agencies.

Most towns of Dracut's size and complexity have a department or agency specifically responsible for local planning and development activities. A town planner and supporting staff would provide valuable assistance in reviewing development proposals and in implementing Master Plan proposals and recommendations. Such a position usually pays for itself by helping the Town avoid costly mistakes and through the obtaining of state and federal grants for infrastructure and other purposes.

A number of models exist for the town planning function within local government. These include establishing a planning department under the policy direction of the Planning Board, establishing a town planner function within the Town Manager's office, or establishing a Department of Community Development which might include a variety of functions including community planning, permitting, inspection, enforcement and economic development.

A variety of other combinations exist and could be considered. Planning is a function of management and Dracut is at a state in its development where careful management of all community resources is essential.

8.6 OTHER IMPLEMENTATION RECOMMENDATIONS

A number of other recommendations for implementation of various Master Plan elements are contained within each of the previous sections discussing each element.

Exhibit A:
COMMUNITY SURVEY

Exhibit A
Community Survey

A community survey was administered to Dracut residents to identify issues of importance to the community regarding residential and commercial growth, recreation needs, and town character. The results from this survey helped to confirm the level of public support for some of the goals and objectives for the Master Plan.

A total of 10,000 survey forms were delivered to residents on September 8, 1998. Of these, 1,585 were returned, yielding a response rate of 16%. The number of responses received is sufficient to draw conclusions from a representative sample of town residents. The tabulations from the survey are shown on the form that follows.

The survey consisted of 23 yes/no or multiple choice questions and one open ended question. Space was also provided for any additional comments. Several multiple choice questions asked for one or more answers, and some also allowed respondents to write in additional answers that were not included.

Question 1 asked respondents to indicate (from a list of ten choices) what they see as the three most serious problems facing the town in the next five years. This question sought to target the highest priority issues according to town residents; items that were not highly ranked may still be of serious concern to residents. Residential growth was mentioned by 55% of the respondents. Adequacy of schools was mentioned by 49% of the respondents, and traffic was mentioned by 43%.

Question 2 asked whether respondents find the present rate of growth to be too fast, too slow, or about right. 62% said the rate of growth is too fast, and 32% felt that the rate of growth is about right. Only 92persons, or 6% of respondents felt that the rate of growth is too slow.

Questions 3-4 asked whether the Town should seek to better define its Town Center, and where they felt the Town Center should be located. 59% replied yes to the first question, while 41% replied no. The majority of respondents, 83%, agreed that the Town Center belongs on Arlington Street near the current library and Town Hall, while 17% offered suggestions for other locations for a Town Center. Sites along Lakeview Ave, especially near the High School and/or Police Department were mentioned. It was also suggested that one of the historic mill complexes on Beaver Brook might be a good location for a new Town Hall campus.

Questions 5-7 inquired about the need for further retail and commercial growth in Dracut. In Question 5, 45% of respondents indicated that they would like to see more retail stores and services in town, while 55% indicated that they would not. When asked in Question 6 about the specific kinds of retail and services they would like to see, 34% of the respondents indicated clothing stores; 26% indicated household goods, and 19% indicated restaurants. Types of businesses listed in the "other" column included a bookstore, café, and medical services.

Question 7 asked whether Dracut should have other types of commercial or industrial areas. Respondents could answer yes or no to each of five types of commercial or industrial activities listed. Respondents were generally supportive of high quality commercial and industrial development. 58% of respondents answered "yes" to business and professional offices, 57% answered "yes" to high tech businesses, and 47% answered "yes" to an industrial park. Truck terminals and automotive uses were the most unpopular among respondents, with 58% and 56%, respectively, opposed to encouraging these types of new development.

Questions 8-9 pertained to recreational facilities in Dracut. To Question 8, 40% of respondents indicated that the existing recreational facilities are adequate. When asked in Question 9 about the kinds of recreational facilities that are needed, 74% of respondents mentioned hiking trails. Swimming facilities were mentioned by 60% of respondents, while playgrounds were listed by 46% of respondents. Facilities for basketball, skate boarding and roller blading were commonly mentioned in the "other" category.

Questions 10-11 related to the provision of housing. In Question 10, 65% of respondents supported housing for special purposes, while 35% did not. Question 11 asked respondents who answered affirmatively to check the specific types of special needs housing they would support. "Providing a place for seniors needing special housing" received 848 mentions, or 94% of responses; while providing a place for older couples ("empty nesters") received 508 mentions, or 56% of responses; and 41% supported housing for low and moderate income elderly and families.

Question 12 asked why the respondents live in Dracut, choosing from one or more of the five reasons listed. Answers were quite varied. 48% of the respondents mentioned the availability of housing in their price range, while 44% mentioned the nearby rural environment. A large number of people also indicated that either they were born in Dracut, grew up there, or had family connections to the town.

Questions 13-15 pertained to the preservation of the town's natural and open spaces and historic sites. In Question 13, over 70% of respondents felt that farmland, forest land, lakes and ponds should be preserved, while rivers and streams and drinking water sources were each mentioned by over 60% of respondents. Question 14 asked how respondents what actions they thought the Town should take to acquire more open space. 71% of respondents felt the Town should seek land donations and conservation restrictions from landowners, while 41% felt the Town should approve purchase of open space at Town meeting. 31.7% of respondents favored paying additional taxes for open space preservation.

In answer to Question 15, 84% of respondents supported the preservation of historic buildings and sites by suitable means.

Question 16 was an open ended question, inviting the respondents to list buildings sites or districts that they think should be retained and protected by the town. The sites most often mentioned included the mills at Navy Yard and Collinsville, Town Hall, the Library, historic buildings such as the old yellow meeting house, Harmony Hall, the Grange Hall, some significant older homes, and several farms.

Question 17 asked respondents whether they are satisfied with the town's government structure. Of those who responded, 826 persons, or 58%, felt that the Town Charter should be reviewed. 594 respondents, or 42% indicated that they are satisfied with the existing structure.

Questions 18-23 were intended to draw a demographic profile of the respondents to determine if the survey response is a valid sample of the population.

The age of the heads of households responding was obtained in Question 18. Comparing the age profile of respondents to heads of household reported in the 1990 U.S. Census, the respondents are fairly representative of Dracut's population. Fifteen percent of the respondents are from the younger two age groups, while 49% are from the middle two age groups, and 36% are from the older two age groups. The proportion in the older age groups is about the same as the proportion of heads of households in these age groups in 1990, while the proportion of respondents in the

younger age groups is somewhat lower, and the proportion in the middle age groups is somewhat higher than in the 1990 Census profile. Demographic trends indicate that the middle-aged population in Dracut is increasing more rapidly than other age groups, thus the sample of respondents may be closer to the actual population in 1998 than the 1990 Census profile suggests.

Question 18a asked for the number of children in the respondent's household by age group. There were a total of 1,269 children in 997 families who reported children. Of these, 45% are under 5 years old, 37% are between the ages of 6 and 14 years, and 18% are between the ages of 15 and 18 years. Because of the structure of the question, some families may not have answered it or may have answered it incorrectly.

Question 19 asked for the occupations of heads of households, allowing the respondents to select one or two choices. The number of respondents in professional or managerial occupations is somewhat higher than what is shown in the 1990 census profile, while the number of respondents in manufacturing occupations is slightly lower. The respondents who are retired or are stay-at-home spouses is also lower than reported in the census. Again, changes in the employment profile in the region since 1990 may account for much of these differences.

Question 20 sought the income distribution of the respondents. Over 57% of the respondents reported a household income of greater than $50,000. Compared with the 1990 income distribution profile, there was a smaller proportion of respondents earning $100,000 or more, and a larger proportion earning $50,000 - $75,000. The proportion of respondents earning less than $35,000 is smaller than the percentage of households in those income groups in 1990. Household incomes in Massachusetts rose by 6.4% from 1989 to 1997.

Question 21 asked how long the respondents have lived in Dracut. The results indicate that 19% of the respondents have lived in Dracut for five years or less; 11% have lived in the town for six to ten years, and 70% have lived in the town for more than 10 years.

Question 22 asked what kind of housing the respondents live in. The vast majority, 87%, own and live in single or two-family homes. Only 6% indicated that they live in rented dwelling units.

Question 21 sought the geographic distribution of survey respondents in the town. The town was divided into five neighborhoods: Navy Yard, Collinsville, Dracut Center, East Dracut, and Kenwood. The proportion of respondents from Navy Yard, Dracut Center, and Kenwood was fairly even at about 16-17%. Collinsville had a much higher representation, with about 35%, while only about 14% of respondents came from East Dracut. The slightly uneven distribution reflects the general pattern of development throughout the town.

In summary, the survey respondents tended to be slightly older and have somewhat higher incomes than average, and they are more likely to work in professional occupations. The respondents are also more likely to own their homes than the general population. The majority of respondents have lived in Dracut for a relatively long period of time (70% for 10 years or more). Based upon the profile of the respondents, the survey response is considered to be a generally representative cross section of the households in Dracut.